

DRAFT NOTICE OF FINAL RULEMAKING
MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS
REGULATION III
RULE 316 – NONMETALLIC MINERAL PROCESSING

PREAMBLE

- 1. Sections affected****Rulemaking action**
Rule 316, all sectionsAmend
- 2. Statutory authority for the rulemaking:**
Authorizing statutes: Arizona Revised Statutes, Title 49, Chapter 3, Article 3, Sections 479 and 480 (ARS §49-479, ARS §49-480)
Implementing statute: Arizona Revised Statutes, Title 49, Chapter 1, Article 1, Section 112 (ARS §49-112)
- 3. The effective date of the rules:**
Date of adoption: June 8, 2005
- 4. List of all previous notices appearing in the register addressing the proposed rules:**
 - a. Notice of Rulemaking Docket Opening: Volume #10, A.A.R. Issue #23, p. 2267, June 4, 2004
 - b. Notice of Proposed Rulemaking: Volume #11, A.A.R. Issue #6, p. 625, February 4, 2005
- 5. Name and address of agency personnel with whom persons may communicate regarding the rulemaking:**
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- 6. An explanation of the rule, including the department's reasons for initiating the rules:**

Rule 316 limits the emission of particulate matter (PM₁₀) into the ambient air from any commercial and/or industrial nonmetallic mineral processing plant and/or rock product plant. PM₁₀ emissions are generated from commercial and/or industrial nonmetallic mineral processing plants and/or rock product plants during the mining, processing, and handling (i.e., transporting, loading/unloading, conveying, crushing, screening, mixing, and storing) of nonmetallic minerals. Unpaved roads and trackout are other sources of PM₁₀ emissions from such operations.

Maricopa County adopted Rule 316 in July 1993 and revised Rule 316 in April 1999, in order to make the existing standards consistent with revisions to the Standards Of Performance For Nonmetallic Mineral Processing Plants (40 Code Of Federal Regulations (CFR) Part 60 Subpart OOO).

The revisions to Rule 316 to be adopted June 8, 2005 incorporate best available control measures (BACM) and most stringent measures (MSM) that are included in the revised PM₁₀ State

Implementation Plan (SIP) - the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004. With the revisions to Rule 316, Rule 316 will require compliance with emission limitations and the implementation of process controls and fugitive dust control measures by any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant.

On July 2, 2002, the Environmental Protection Agency (EPA) found the controls proposed in the Arizona Department Of Environmental Quality's (ADEQ's) May 1997 Plan For Attainment Of The 24-Hour PM₁₀ Standard-Maricopa County PM₁₀ Nonattainment Area, inadequate to ensure the attainment of the PM₁₀ national ambient air quality standards (NAAQS) at the Salt River air quality monitoring sites. The finding of inadequacy included the State Implementation Plan's (SIP's) attainment and reasonable further progress (RFP) demonstrations for the 24-hour PM₁₀ standard at the Salt River monitoring sites and three other microscale sites in the Maricopa County PM₁₀ nonattainment area (Maryvale, Gilbert, and West Chandler).

Although the EPA approved Arizona's 1997 SIP revision and additional required controls proposed by Maricopa County on August 4, 1997, EPA's Aerometric Information Retrieval System (AIRS) continued to show exceedances at the Maricopa County PM₁₀ nonattainment area Salt River site - recording expected exceedances in 1999, 2000, and through three quarters of 2001. Consequently, the EPA required Arizona to submit a SIP revision to identify and implement corrective PM₁₀ control provisions in the Salt River Study Area and for similar significant sources in the Maricopa County PM₁₀ nonattainment area.

Arizona's SIP revision was required to provide for attainment in the Salt River site no later than December 31, 2006, in accordance with CAA §189(b)(1)(A) and 188(e), and was required to include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories.

The Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004 constitutes Arizona's revisions to the State Implementation Plan for the Maricopa County PM₁₀ serious nonattainment area and includes the following State Implementation Plan requirements, as described by the EPA in its Federal Register notice of disapproval (67 FR 44369, July 2, 2002):

- A modeling demonstration showing that the level of emissions reductions from application of BACM-MSM for all significant sources of PM₁₀ will result in attainment of the 24-hour NAAQS by December 31, 2006, at the Salt River PM₁₀ monitoring site, in accordance with CAA §189(b)(1)(A) and §188(e).
- Commitments to implement best available control measures (BACM)-most stringent measures (MSM) for sources significantly contributing to exceedances of the 24-hour PM₁₀ standard in the Salt River area as expeditiously as possible (CAA §189(b)(1)(B)) and a commitment that all BACM and MSM control measures adopted and applied to sources in the

Salt River Study Area will be applied to all similar sources throughout the Maricopa County PM₁₀ serious nonattainment area.

- A demonstration that the plan constitutes Reasonable Further Progress (RFP) up to the attainment deadline - December 31, 2006.
- A demonstration that all the requirements of the federal Clean Air Act Amendments that pertain to serious PM₁₀ nonattainment areas are met - including CAA §110(l), §110(a)(2)(E)(i), and 40 CFR §51.280 and §51.111).

For the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004, ADEQ used the 2002 PM₁₀ emissions data from the Maricopa County 2002 periodic PM₁₀ emissions inventory, developed a base year emissions inventory from an extensive field study conducted between June 1, 2002 and December 31, 2002, and projected 2006 PM₁₀ emissions.

The 2002 PM₁₀ emissions data from the Maricopa County 2002 periodic PM₁₀ emissions inventory includes point, area, and nonroad mobile source emission estimates. For the purposes of the 2002 periodic PM₁₀ emissions inventory, point sources included those stationary sources within Maricopa County or within 25 miles of the Maricopa County PM₁₀ nonattainment area, which in 2002 emitted five tons or more of PM₁₀. Point sources identified in the 2002 periodic PM₁₀ emissions inventory that are subject to Rule 316 fell into three point source categories: (1) sand and gravel, (2) unpaved road travel, and (3) asphalt, concrete, and tile. Area sources were also included in the 2002 periodic PM₁₀ emissions inventory and were defined as stationary sources that were too small or too numerous to be treated as point sources. Area sources identified in the 2002 periodic PM₁₀ emissions inventory that are subject to Rule 316 fell into three area source categories: (1) nonmetallic mineral processes, (2) mining and quarrying, and (3) paved/unpaved road travel on industrial sites.

In addition to using the data from the Maricopa County 2002 periodic PM₁₀ emissions inventory, ADEQ calculated gridded hourly emissions for four design days: January 8, 2002; April 15, 2002; April 26, 2002; and December 16, 2002. The design days were selected based on two separate meteorological constructs, each of which reflects different arrays of emissions sources and different levels of source significance: two days represent high PM₁₀ concentrations experienced during days affected by low wind conditions and a thermal inversion (January 8, 2002 and December 16, 2002); two days represent high PM₁₀ concentrations experienced during days affected by periodic wind speeds over 15 miles per hour (April 15, 2002 and April 16, 2002).

The base year emissions inventory used for the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004 was developed as the result of an extensive field study, conducted between June 1, 2002 and December 31, 2002. The study focused on identifying the locations of activities in the Salt River study area that generate fugitive dust. Satellite image analysis and observation of the Salt River study area resulted in the identification of general

categories of PM₁₀ emissions sources, which were subsequently input into ADEQ's GRIDTEST emissions model for the development of source hourly emissions, by grid.

The locations and types of fugitive dust generating activities that were observed during the Salt River study were mapped and the relative contributions of the types of fugitive dust sources observed during the Salt River study were graphed. The graphs show contributions attributed to vehicle material transport at construction and industrial sites; contributions attributed to trackout at construction, industrial, and private sources; and contributions attributed to unpaved hauling observations at industrial and construction sources. A satellite image of the Salt River study area with an overlay of the above land uses was made. ADEQ's emissions inventory for the Salt River study area was developed from this data.

After having developed a base year emissions inventory from an extensive field study, ADEQ reviewed rules and regulations from other jurisdictions across the United States and identified those requirements that were more stringent than requirements currently required by Arizona rules (i.e., best available control measures (BACM) and most stringent measures (MSM)). When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measures to choose.

ADEQ did not make determinations upon whether or not the emissions from a single source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM₁₀ State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM₁₀ State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM₁₀ in the study area will demonstrate compliance with the national ambient air quality standards for PM₁₀ by 2006.

ADEQ projected that the following emissions source categories would show a change in emissions between 2002 and 2006, due to implementing best available control measures (BACM) and most stringent measures (MSM) for sources significantly contributing to exceedances of the 24-hour PM₁₀ standard in the Salt River area: agricultural tillage, construction activity, freeway traffic, primary and secondary road traffic, unpaved parking lots, unpaved road shoulders, wind erosion on agricultural land, wind erosion on construction sites, wind erosion on vacant lots and disturbed areas.

Maricopa County is revising Rule 316 in order to incorporate best available control measures (BACM) and most stringent measures (MSM) as described in the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004. In order to reduce emissions from nonmetallic mineral processing plants, asphaltic concrete plants, concrete plants and/or bagging operations, and/or rock product plants, the revisions to Rule 316 include process controls (i.e., enclosures, watering systems, operational overflow warning systems/devices, and fabric filter baghouses), process emission limitations (i.e., stack emissions limitations), fugitive dust emission limitations (i.e., 20% opacity limit, 0% opacity limit at the property line, silt loading limit, silt content limit, and stabilization standards), and fugitive dust control measures (i.e., during a wind event, for open storage piles and material handling, haul/access roads, on-site traffic, off-site traffic, trackout, spillage, and night-time operations).

The revisions to Rule 316 include adding Section 306-Fugitive Dust Emission Limitations. Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation; (2) Visible Emission Limitation Beyond Property Line; (3) Wind Event; (4) Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas; and (5) Stabilization Standards.

The revisions to Rule 316 also include adding Section 307-Fugitive Dust Control Measures. Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling; (2) Surface Stabilization Where Support Equipment And Vehicles Operate; (3) Haul/Access Roads; (4) On-Site Traffic; (5) Off-Site Traffic; (6) Trackout; (7) Pad Construction For Processing Equipment; (8) Spillage; and (9) Night-Time Operations.

Section By Section Explanation Of Changes:

Title	This revision deletes "Mining And" from the title of Rule 316. With this deletion, the title of Rule 316 is proposed to be "Nonmetallic Mineral Processing". By definition, "nonmetallic mineral processing" includes "mining/excavating", therefore, deleting "mining" from the title only deletes a redundancy.
Section 101	This revision deletes "mining operation" and "or" and adds "mineral processing plant" and "and/or".
Section 102	This revision deletes "mining" and "operation" and adds "processing plant", and "processing".
Section 200	This revision deletes "For the purpose of this rule, the following definitions shall apply" and adds "See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply".
Section 201	This revision adds "excavates and" to the definition of affected operation.

Section 202	This revision adds the definition of aggregate truck. Definition of aggregate truck matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 204	This revision adds the definition of area accessible to the public. Definition of area accessible to the public matches Rule 310 (Fugitive Dust): Any retail parking lot or public roadway that is open to public travel primarily for the purposes unrelated to the dust generating operation.
Section 207	This revision adds the definition of batch truck: Any truck that loads and transports products produced by batch.
Section 209	This revision adds the definition of berms and guard rails. Definition of berms and guard rails matches 30 Code Of Federal Regulations (CFR) 56.9300: A pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede the vehicle's passage over the bank of the roadway.
Section 210	This revision adds the definition of bulk material. Definition of bulk material matches Rule 310 (Fugitive Dust): Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than 2 inches in length or diameter (i.e., aggregate base course (ABC)), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that are capable of producing fugitive dust.
Section 211	This revision adds the definition of cohesive hard surface: Any material, including but not limited to, pavement, recycled asphalt mixed with a binder, or a dust suppressant other than water applied and maintained as a roadway surface.
Section 213	This revision deletes "pneumatic" and adds "pressure control" to the definition of conveying system.
Section 215	This revision deletes the definition of particulate matter and adds the definition of disturbed surface area. Definition of disturbed surface area matches Rule 310 (Fugitive Dust): A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust.
Section 217	This revision adds the definition of dust generating operation. Definition of dust generating operation matches Rule 310 (Fugitive Dust): Any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction,

demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

- Section 218 This revision adds the definition of dust suppressant. Definition of dust suppressant matches Rule 310 (Fugitive Dust): Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the EPA or the Arizona Department Of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.
- Section 220 This revision adds the definition of end of work day. Definition of end of work day matches South Coast's Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
- Section 221 This revision adds the definition of fabric filter baghouse: Tube-shaped filter bags/Long small-diameter fabric tubes referred to as "bags" arranged in parallel flow paths designed to separate particles and flue gas.
- Section 222 This revision adds the definition of freeboard. Definition of freeboard matches Rule 310 (Fugitive Dust): The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.
- Section 223 This revision adds the definition of fugitive dust control measure: A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.
- Section 224 This revision adds the definition of Fugitive Dust Control Technician: A person with authority to expeditiously employ sufficient fugitive dust control measures to ensure compliance with Rule 316 of these rules at an active operation.
- Section 225 This revision deletes 'that is', "and" and "released to and suspended" and adds "that", "entrained", and "and is caused from human and/or natural activities".

Section 226	This revision adds the definition of geotextile. Definition of geotextile matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 228	This revision adds the definition of haul/access road. Definition of haul/access road matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 229	This revision adds the definition of haul truck. Definition of haul truck matches Rule 310 (Fugitive Dust): Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.
Section 230	This revision adds the definition of infrequent operations. Definition of infrequent operations matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 231	This revision adds the definition of material delivery truck: Any truck that loads and transports product to customers.
Section 232	This revision adds the definition of mixer truck. Definition of mixer truck matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 233	This revision adds the definition of motor vehicle. Definition of motor vehicle matches Rule 310 (Fugitive Dust): A self-propelled vehicle for use on the public roads and highways of the State Of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.
Section 234	This revision adds the definition of new facility: A facility subject to this rule that has not been mined or excavated by such facility prior to xxxx xx, 2005 (30 days after the Maricopa County Board Of Supervisors approves/adopts Rule 316).
Section 237	This revision adds the definition of open areas and vacant lots. Definition of open areas and vacant lots matches Rule 310 (Fugitive Dust).
Section 238	This revision adds the definition of open storage pile. Definition of open storage pile matches Rule 310 (Fugitive Dust). According to this definition,

an open storage pile is considered an open storage pile when the material that makes-up the open storage pile has 5% or greater silt content. Basically, silt content (particles equal to or less than 75 micrometers in diameter) is determined by measuring the portion of dry aggregate material that passes through a 200-mesh screen, using ASTM Method C136-01. Appendix C (Fugitive Dust Test Methods) of the Maricopa County Air Pollution Control Regulations explains ASTM Method C136-01, the procedure for determining silt content. Maricopa County will, however, write a guidance to better explain how to determine silt content.

- Section 239 This revision adds the definition of overburden operation: An operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit.
- Section 241 This revision adds the definition of pave: To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, or rubberized asphalt mixed with a binder).
- Section 242 This revision adds the definition of Portland Cement Plant: Any facility that manufactures Portland Cement using either a wet or dry process.
- Section 243 This revision adds the definition of pressure control system: System in which loads are moved in the proper sequence, at the correct time, and at the desired speed through use of valves that control the direction of air flow, regulate actuator speed, and respond to changes in air pressure.
- Section 246 This revision adds the definition of production work shift. Definition of production work shift matches South Coast's Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
- Section 247 This revision adds the definition of public roadways. Definition of public roadways matches Rule 310 (Fugitive Dust): Any roadways that are open to public travel.
- Section 248 This revision adds the definition of returned products. Definition of returned products matches South Coast's Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005:
- Section 249 This revision adds the definition of rumble grate. Definition of rumble grate matches South Coast's Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 251	This revision adds the definition of silt. Definition of silt matches Rule 310 (Fugitive Dust): Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.
Section 252	This revision adds the definition of spillage: Any quantity of nonmetallic minerals/materials that spill while being processed or after having been processed by an affected operation, where such spilled nonmetallic minerals/materials can generate or cause fugitive dust emissions.
Section 254	This revision adds the definition of staging area. Definition of staging area matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 256	This revision adds the definition of temporary facility: A facility that occupies a designated site for not more than 180 days in a calendar year.
Section 257	This revision adds the definition of trackout. Definition of trackout matches Rule 310 (Fugitive Dust): Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved areas accessible to the public.
Section 258	This revision adds the definition of trackout control device: A gravel pad, grizzly, wheel washer, rumble grate, paved area, truck washer, or other equivalent trackout control device located at the point of intersection of an unpaved area and a paved area accessible to the public that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of aggregate trucks, haul trucks, and/or motor vehicles that traverse a facility.
Section 261	This revision adds the definition of truck washer. Definition of truck washer matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 262	This revision adds the definition of unpaved road. Definition of unpaved road matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 263	This revision adds the definition of urban or suburban area. Definition of urban or suburban area matches Rule 310 (Fugitive Dust): The definition of urban or suburban area is included in Section 231 (Definition Of Open Areas And Vacant Lots) of this rule.
Section 265	This revision adds the definition of wheel washer. Definition wheel washer matches South Coast's Rule 1157 (PM ₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 266	This revision adds the definition of wind-blown dust. Definition of wind-blown dust matches Rule 310 (Fugitive Dust): Visible emissions, from any disturbed surface area, that are generated by wind action alone.
Section 267	This revision adds the definition of wind event. Definition of wind event matches Rule 310 (Fugitive Dust): ‘When the 60-minute average wind speed is greater than 25 miles per hour’. Typically, a wind speed of 15 miles per hour is sufficient to create fugitive dust. According to the definition, a wind speed of 25 miles per hour is a ‘wind event’ and, in order to have an affirmative defense against a violation of Rule 316, fugitive dust control measures must be implemented during a ‘wind event’.
Section 301	This revision deletes "Limitations" and "No person shall discharge or cause or allow to be discharged into the ambient atmosphere" and adds "Nonmetallic Mineral Processing Plants-Process Emission Limitations And Controls".
Section 301.1	This revision adds “Process Emission Limitations: The owner and/or operator of a nonmetallic mineral processing plant shall not discharge or cause or allow to be discharged into the ambient air”.
Section 301.1(a)	This revision adds "grains/dry standard cubic foot" and "Such stack emissions shall be vented to a properly sized fabric filter baghouse".
Section 301.2	This revision adds “Controls: For crushing and screening facilities, the owner and/or operator of a nonmetallic mineral processing plant shall implement all of the following process controls: a. Enclose sides of all shaker screens; b. Permanently mount watering systems (e.g., spray bars or an equivalent control) on: (1) Inlet and outlet of all crushers; (2) Outlet of all shaker screens; and (3) Outlet of all material transfer points, excluding wet plants”.
Section 302	This revision deletes "Limitations" and "No person shall discharge or cause or allow to be discharged into the ambient air" and adds “Asphaltic Concrete Plants-Process Emission Limitations And Controls”.
Section 302.1	This revision deletes “Stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg/dscm) of particulate matter” and adds “Process Emission Limitations: The owner and/or operator of an asphaltic concrete plant shall not discharge or cause or allow to be discharged into the ambient air: a. For non-rubberized asphaltic concrete plants, stack emissions exceeding 5% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period. b. For rubberized asphaltic concrete plants (when producing rubberized

asphalt only), stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period. c. From all cement, lime, and/or fly-ash storage silo(s), fugitive dust emissions exceeding 20% opacity”.

Section 302.2 This revision deletes “Fugitive dust emissions exceeding 20% opacity from any other affected operation or process source” and adds “Controls: The owner and/or operator of an asphaltic concrete plant shall implement all of the following process controls: a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment. b. On all existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period. c. On all new cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf, with an opacity limit of not greater than 5% over a 6-minute period. d. From all drum dryers, control and vent exhaust to a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period”.

Section 303 This revision deletes “Limitations Concrete Plants And Bagging Operations: No person shall discharge or cause or allow to be discharged into the ambient air” and adds “Concrete Plants And/Or Bagging Operations-Process Emission Limitations And Controls”.

Section 303.1 This revision deletes “Stack emissions exceeding 7% opacity and adds “Process Emission Limitations: The owner and/or operator of a concrete plant and/or bagging operation shall not discharge or cause or allow to be discharged into the ambient air: a. Stack emissions exceeding 7% opacity. b. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher. c. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher”.

Section 303.2 This revision deletes “Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher” and adds “Controls: The owner and/or operator of a concrete plant and/or bagging operation shall implement the following process sources: a.

On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment. b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period. c. On new cement, lime, and/or fly-ash storage silos, install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf. d. On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls: (1) Install a rubber fill tube; (2) Install a water spray; (3) Install a properly sized fabric filter baghouse or delivery system; (4) Enclose mixer loading stations such that no visible emissions occur; or (5) Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities. e. On cement silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in O&M Plan”.

Section 304 This revision deletes "Limitations", "activities", and "mining and" and adds "affected operations or process sources" and “all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations”.

Section 305 This revision deletes "Requirement For", "Monitoring Equipment", and "For the purpose of this rule, an emission control system (ECS) is a system for reducing emissions of particulates, consisting of both collection and control devices, which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practices.” This text is already written in the Section 202 (Definition Of Approved Emission Control System).

Section 305.1(a) This revision deletes "or" and adds "and/or".

Section 305.1(b) This revision deletes "or" and "of" and adds "and/or" and “for”.

Section 305.1(c) This revision deletes "or" and adds "and/or".

Section 305.2 This revision deletes "or" and "Plan" and adds "and/or" and "Plan(s)".

Section 305.3 This revision deletes "or", "subsection 305.1", and “or” and adds "and/or" and "Section 305.1".

Section 306	This revision adds Section 306 (Fugitive Dust Emission Limitations). Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation; (2) Visible Emission Limitation Beyond Property Line; (3) Wind Event; (4) Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas; and (5) Stabilization Standards. This proposed revision addresses best available control measures (BACM) and most stringent measures (MSM) proposed in the Salt River PM ₁₀ State Implementation Plan (SIP) Revision.
Section 306.1	This revision adds a 20% opacity limitation.
Section 306.2	This revision adds a visible emission limitation beyond the property line. Fugitive dust emissions must not remain visible in the atmosphere beyond the property line of a facility. Such requirement is applicable to the source generating the fugitive dust emissions and/or to the property owner. In compliance determinations, the first effort is to obtain compliance with the source generating the fugitive dust emissions but may involve the property owner.
Section 306.3	This revision adds fugitive dust control measures for wind events.
Section 306.4	This revision adds silt loading and silt content standards for unpaved internal roads and unpaved parking and staging areas.
Section 306.5	This revision adds stabilization requirements for open storage piles and material handling and for surface soils where support equipment and vehicles operate in association with such facility.
Section 307	This revision adds Section 307 (Fugitive Dust Control Measures). Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling; (2) Surface Stabilization Where Support Equipment And Vehicles Operate; (3) Haul/Access Roads; (4) On-Site Traffic; (5) Off-Site Traffic; (6) Trackout; (7) Pad Construction For Processing Equipment; (8) Spillage; and (9) Night-Time Operations. This proposed revision addresses best available control measures (BACM) and most stringent measures (MSM) proposed in the Salt River PM ₁₀ State Implementation Plan (SIP) Revision.
Section 307.1	This revision requires fugitive dust control measures to be implemented for open storage piles and material handling.
Section 307.2	This revision requires fugitive dust control measures to be implemented for surface soils where loaders, support equipment, and vehicles operate.
Section 307.3	This revision requires fugitive dust control measures to be implemented for haul/access roads.

Section 307.4	This revision requires all batch trucks and material delivery trucks to remain on paved surfaces or cohesive hard surfaces when entering, conducting primary functions in permanent areas (i.e., warehouse and maintenance areas, office areas, entrances to batch plants, concrete plant areas, and asphaltic plant areas), and leaving the facility and requires that fugitive dust control measures be implemented when hauling and/or transporting bulk material on-site within the property line of a facility.
Section 307.5	This revision requires fugitive dust control measures to be implemented when hauling and/or transporting bulk material off-site.
Section 307.6	This revision requires fugitive dust control measures to be implemented for trackout.
Section 307.7	This revision requires fugitive dust control measures to be implemented during the construction of pads for processing equipment.
Section 307.8	This revision requires fugitive dust control measures to be implemented when spillage occurs.
Section 307.9	This revision requires fugitive dust control measures to be implemented for a facility operating at night.
Section 308	This revision adds a requirement that a facility with a rated or permitted capacity of 25 tons or more per hour of material have in place a Fugitive Dust Control Technician or his designee.
Section 309	This revision adds a requirement that a Dust Control Plan must be submitted to the Control Officer.
Section 401	This revision deletes "O&M Plan" and "Any owner or operator of a facility employing an ECS device as of April 21, 1999 to meet the requirement of this rule, shall file, by October 18, 1999, an O&M Plan with the Control Officer in accordance with subsection 501.3 of this rule" and adds "The newly amended provisions of this rule shall become effective upon adoption of this rule and the following schedule applies".
Section 401.1	This revision adds a compliance schedule for Dust Control Plans.
Section 401.2	This revision adds a compliance schedule for pressure control systems.
Section 401.3	This revision adds a compliance schedule for operational overflow warning systems/devices.
Section 401.4	This revision adds a compliance schedule for Fugitive Dust Control Technicians.
Section 401.5	This revision adds a compliance schedule for surface stabilization and/or paving where support equipment and vehicles operate.

- Section 401.6 This revision adds a compliance schedule for trackout control - for installing rumble grates, wheel washers, or truck washers and for using PM₁₀ efficient South Coast Air Quality Management Rule 1186-certified street sweepers. The compliance schedule for trackout control is longer than the compliance schedules to implement and/or to comply with other measures associated with Rule 316, because there are a limited number of vendors and/or suppliers of trackout control devices and certified street sweepers in Maricopa County.
- Section 501 This revision deletes "person" and adds "owner and/or operator of a facility".
- Section 501.2(a) This revision deletes "plant" and "hours of operation; type of batch operation (wet, dry, central); throughput per day of basic raw materials including sand, aggregate, cement, (tons/day); volume of concrete and asphaltic concrete produced per day; volume of aggregate mined per day (cu. yds./day); composition of a cubic yard of concrete produced (percent cement, sand, aggregate, admixture, water, fly ash, etc.); composition of a cubic yard of asphaltic concrete produced (percent cement, sand, aggregate, gypsum, admixture, water, fly ash, etc.); amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day)" (these items are listed separately in Sections 501.2(a)(1) - 501.2(a)(6)) and adds "facility" and "all of".
- Section 501.2(a)(1)-(6) This revision lists items that are proposed to be deleted from Section 501.2(a).
- Section 501.2(b) This revision deletes "Plants" and "The number of bags of dry mix produced per day; weight (size) of bags of dry mix produced per day; kind and amount of fuel consumed in dryer (cu. ft./day or gals./day); kind and amount of any back-up fuel (if any)" (these items are listed separately in Sections 501.2(b)(1) - 501.2(b)(4)) and adds "Bagging Operations" and "Records shall include all of the following".
- Sections 501.2(b)(1)-(4) This revision lists items that are proposed to be deleted from Section 501.2(b).
- Section 501.2(c) This revision deletes "Baghouse records shall include dates of inspection, dates and designation of bag replacement, dates of service or maintenance, related activities, static pressure gauge (manometer) hourly readings. Scrubber records shall include dates of service or maintenance related activities; the scrubbing liquid flow rate; the pressure or head loss; and/or any other operating parameters which need to be monitored to assure that

the scrubber is functioning properly and operating within design parameters. Records of time, date and cause of all control device failure and down time shall also be maintained" (these items are listed separately in Sections 501.2(c)(1) and 501.2(c)(2)) and adds "Records shall include all of the following".

Section 501.2(c)(1)-(2) This revision lists items that are proposed to be deleted from Section 501.2(c).

Section 501.3 This revision deletes "or" and "a record of the periods of time than an approved ECS is used to comply with this rule. Key system parameters, such as flow rates, pressure drops, and other conditions necessary to determine if the control equipment is functioning properly, shall be recorded in accordance with the approved O&M Plan. The records shall account for any periods when the control system was not operating. The owner or operator of a facility shall also maintain results of the visual inspection and shall record any corrective action taken, if necessary" (these items are listed separately in Sections 501.3(a) - 501.3(g)) and adds "and/or" and "all of the following records in accordance with an approved O&M Plan".

Sections 501.3(a)-(g) This revision lists items that are proposed to be deleted from Section 501.3.

Section 501.4 This revision adds recordkeeping and reporting requirements for Dust Control Plans.

Section 502 This revision deletes "July 1, 1998" and "Code Of Federal Regulations" and adds "July 1, 2003" and "40 Part 60, Appendix A-Test Methods Adopted By Reference".

Section 502.2 This revision deletes "techniques specified in EPA Reference Method 9, 40 CFR Part 60, Appendix A, except the opacity observations for intermittent visible emissions shall require 12 (rather than 24) consecutive readings at 15 second intervals" and adds "test methods described in Appendix C (Fugitive Dust Test Methods) of these rules".

Section 503 This revision adopts by reference the soil moisture and soil compaction characteristics test methods.

Section 504 This revision adopts by reference the stabilization standards test methods.

Section 505 This revision adopts by reference the list of street sweeping equipment that has met the South Coast's Rule 1186 certification standards.

7. Demonstration of compliance with A.R.S. §49-112:

Under ARS §49-479(c), a county may not adopt a rule that is more stringent than the rules adopted by the director of the Arizona Department of Environmental Quality (ADEQ) for similar

sources unless it demonstrates compliance with the requirements of ARS §49-112. Under ARS §49-112 (A):

When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:

1. The rule, ordinance or other regulation is necessary to address a peculiar local condition;
2. There is credible evidence that the rule, ordinance or other regulation is either:
 - (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible
 - (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance or other regulation is equivalent to federal statutes or regulations.

Maricopa County is the only PM₁₀ serious nonattainment area in Arizona, consequently stronger regulations must be adopted in this area to address a serious health threat. Because of this, the revisions in Rule 316 comply with ARS §49-112(A)(1). Additionally, because Rule 316 is part of the Arizona State Implementation Plan for the control of PM₁₀, Rule 316 is federally enforceable and changes are required under 40 Code Of Federal Regulations (CFR) 51.120(c)(102) to effect enforceable commitments made by Maricopa County. Therefore, the revisions to Rule 316 are being made pursuant to ARS §49-112(2). Also, Maricopa County is revising Rule 316 in order to address a peculiar local condition: the designation of Maricopa County as a serious nonattainment area for PM₁₀ and to incorporate best available control measures (BACM) and most stringent measures (MSM) as described in the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004.

In July 2002, the Environmental Protection Agency granted Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM₁₀ standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the Environmental Protection Agency a revised PM₁₀ State Implementation Plan. The revised PM₁₀ State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate

matter air pollution by December 31, 2006. In addition, the Environmental Protection Agency requires that best available control measures (BACM) and the most stringent measures (MSM) be applied to similar sources throughout the Maricopa County serious PM₁₀ nonattainment area. The revisions to Rule 316 meet such requirements.

The revisions to Rule 316 include adding Section 306-Fugitive Dust Emission Limitations. Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation; (2) Visible Emission Limitation Beyond Property Line; (3) Wind Event; (4) Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas; and (5) Stabilization Standards.

The revisions to Rule 316 also include adding Section 307-Fugitive Dust Control Measures. Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling; (2) Surface Stabilization Where Support Equipment And Vehicles Operate; (3) Haul/Access Roads; (4) On-Site Traffic; (5) Off-Site Traffic; (6) Trackout; (7) Pad Construction For Processing Equipment; (8) Spillage; and (9) Night-Time Operations.

8. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

- "Final Revised PM₁₀ State Implementation Plan For The Salt River Area", Air Quality Division, Arizona Department Of Environmental Quality dated August 2004.
Available for review at:
<http://www.adeq.state.az.us/environ/air/plan/download/proposedsip.pdf>
Or contact:
Diane Arnst
Arizona Department Of Environmental Quality
Mailcode: 3415A-3
ADEQ Central Office
1110 West Washington Street
Phoenix, Arizona 85007
602.771.2375
- "South Coast AQMD Proposed Rule 1157 Emission Inventory Analysis". Prepared for Southern California Rock Products Association. Prepared by West Coast Environmental And Engineering dated January 7, 2005
- South Coast Air Quality Management District final staff report and final socioeconomic report for proposed Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) dated December 2004

- Maricopa County Air Quality Department 2002 Periodic PM₁₀ Emissions Inventory dated June 2004

9. Summary of the economic, small business, and consumer impact:

Background:

In July 2002, the Environmental Protection Agency (EPA) granted Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM₁₀ standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the EPA a revised PM₁₀ State Implementation Plan. The revised PM₁₀ State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate matter air pollution by December 31, 2006. In addition, the EPA requires that best available control measures (BACM) and the most stringent measures (MSM) be applied to similar sources throughout the Maricopa County serious PM₁₀ nonattainment area.

The best available control measures (BACM) analysis and the most stringent measures (MSM) analysis required by the EPA's extension of the PM₁₀ standards forced the Arizona Department Of Environmental Quality (ADEQ) to review rules and regulations from other jurisdictions across the United States and incorporate those requirements identified as more stringent than current control measures required by local rules. When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measure/control measures to choose.

ADEQ did not make determinations upon whether or not the emissions from a single source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM₁₀ State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM₁₀ State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM₁₀ in the study area will demonstrate compliance with the national ambient air quality standards for PM₁₀ by 2006.

Maricopa County is revising Rule 316 in order to incorporate best available control measures (BACM) and most stringent measures (MSM) as described in the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004. With the revisions to Rule 316,

Rule 316 will require compliance with emission limitations and the implementation of process controls and fugitive dust control measures for nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations.

The following background information and/or economic information is based on information presented in:

- “Impact Of The Rock Products Industry On The Arizona Economy” dated January 2002
- South Coast Air Quality Management District final staff report and final socioeconomic report for proposed Rule 1157-PM₁₀ Emission Reductions From Aggregate And Related Operations dated December 2004
- Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004
- Revised PM₁₀ State Implementation Plan For The Salt River Area-Technical Support Document dated October 2004
- Maricopa County Air Quality Department 2002 Periodic PM₁₀ Emissions Inventory dated June 2004

According to “Impact Of The Rock Products Industry On The Arizona Economy” dated January 2002, the highest quality sand and gravel is located in river beds, within flood plains, and close to growing metropolitan areas, with nearly equal amounts of sand and gravel and relatively small amounts of unusable materials. The primary uses for sand and gravel include:

- Concrete aggregate for buildings, dams, and airports (20%) (A 24-story office building requires 36,000 tons of sand and gravel, a regional retail center requires 100,000 tons of sand and gravel, and a typical 1,600 square foot house requires 100 tons of sand and gravel), highways (Each mile of urban freeway requires 400,000 tons of sand and gravel for pavement, pipes, drains, bridges, walls, and overpasses)
- Road base and coverings (17%) (The first 45 miles of metropolitan Phoenix freeway constructed during the on-going expansion program required 450 tons of cement, 1.8 million cubic yards of concrete, and 2.9 million tons of sand and gravel for pavement alone; The combined inner and outer loops of the fully completed freeway system will consume 92 million tons of sand and gravel and 20 million cubic yards of concrete)
- Asphaltic concrete aggregate (10%) (A typical cubic yard of asphalt weighs 3,959 pounds, of which 3,800 pounds is sand and gravel)
- Construction fill (9%)
- Concrete products such as blocks, bricks and pipes (2%) (A typical cubic yard of wet concrete weighs 3,975 pounds and is composed of 470 pounds of cement, 300 pounds (36 gallons) of water, 1,282 pounds of sand, and 1,923 pounds of gravel)
- Plaster and gunnite sands (2%)
- Numerous other uses such as railroad ballast and roofing materials (40%)

There are four major steps in sand and gravel mining: (1) site clearing, (2) mining, (3) processing (crushing, washing, blending materials), and (4) reclamation. Because of its heavy weight and high transportation costs, sand and gravel is always produced near the point of use. Therefore, the industry nationally and in Arizona is most active in rapidly expanding urban areas or where other large scale construction projects are underway.

Aggregate Operations:

Aggregate operations produce sand, gravel, crushed stones, quarried rocks, slag, and rock dust.

Crushed stone might be composed of limestone, granite, and any other hard rocks that are produced by blasting and then crushing. Sand and gravel consist of unconsolidated granular materials found in natural deposits. The processing of sand and gravel is different depending on the types of the products to be produced.

Aggregate operations can be classified into the following categories:

- Construction Sand And Gravel
- Industrial Sand And Gravel
- Concrete Batching
- Hot Mix Asphalt
- Batch Mix
- Parallel Flow Drum Mix
- Counterflow Drum Mix

Construction Sand And Gravel

Sand and gravel are usually mined in a moist or wet condition by open pit excavation or by dredging. Open pit excavation is carried out with front end loaders, bucket wheel excavators, or draglines. Mining by dredging is carried out with suction or bucket-type dredges that remove sand and gravel from the bottom of a lake or river.

After mining, sand and gravel are transported by conveyors, trucks, barges, or earth movers to the aggregate plants where they are either stockpiled or dumped into hoppers. Sand and gravel are then transported by belt conveyors, hydraulic pumps, or bucket elevators to scalping screens. Materials that pass through scalping screens are fed into sizing screens, which consist of either horizontal or sloped single or multi-deck vibrating screens. Oversize materials are directed to crushers for size reduction before returning to the screening process.

After screening, sized gravel is stockpiled and sand is directed to log washers or rotary scrubbers for the removal of clay and impurities. After scrubbing, sand is sized by water classification, and then dewatered by hydroseparators or separatory cones before being stockpiled.

According to the North American Industry Classification System (NAICS), the construction sand and gravel mining industry comprises establishments primarily engaged in one or more of the following activities/operations: (1) operating commercial grade (i.e., construction) sand and gravel

pits; (2) dredging for commercial grade sand and gravel; and (3) washing, screening, or otherwise preparing commercial grade sand and gravel.

Industrial Sand And Gravel

Industrial sand and gravel are mined from open pits of quartz-rich sand and sandstone. After mining, the materials are transported by trucks or conveyors to the aggregate plants where they are stockpiled and crushed. For primary and secondary crushing, gyratory crushers, jaw crushers, and impact mills are used. After crushing, the materials are further ground to smaller sizes (50 micrometers or smaller) by hammer mills or jet mills, and then classified by screening process(es).

After initial crushing and screening, industrial sand and gravel are washed and classified again before being scrubbed to remove surface stains and further deslimed. The purified sand is conveyed to drainage bins and is then dried in rotary dryers. After drying, industrial sand is cooled and classified again before being stockpiled or packaged for shipment

Concrete Batching

Concrete is mainly composed of water, cement, sand, and coarse aggregate. Mineral admixtures or pozzolans such as fly ash and ground granulated blast-furnace slag may be added to reduce permeability, increase strength, or influence other concrete properties. Chemical admixtures may also be added to entrain air or modify the setting rate.

Approximately 75% of the U.S. concrete is produced at concrete batch plants. Many plants are located near aggregate sources; others may be temporarily set up near major job sites. At most of the concrete batch plants, the above constituents are gravity fed (charged) from the weigh hopper into the mixer trucks, which mix the ingredients on the way to the job sites (dry batch operation). The concrete may also be charged into a central mix drum and transferred to a truck (wet batch operation). The remaining manufactured concrete includes concrete masonry and precast products, such as concrete bricks, paving stones, structural components, bridge girders, and panel for cladding.

Typical equipment in a concrete batch plant includes conveyors, elevators, elevated storage bins and silos, weight hoppers, and mixers.

The primary concern is particulate matter, mostly from cement dust. Cement is so fine that it contains approximately 150 billion particles per pound, about 10% to 20% of which are smaller than 5 microns in diameter. Dust may also come from pozzolan, sand, and aggregates. These dust particulates are generated during the transferring and mixing of materials, as well as from sand and aggregate open storage piles. The movement of heavy trucks on unpaved or dusty surfaces around the plants also generates dust. Typical dust controls at concrete batch plants may include water sprays, dust suppressants, hoods, and baghouses.

Hot Mix Asphalt

Hot mix asphalt is a mixture of size-graded, high quality aggregate, and, as a binder, liquid asphalt cement, which is heated and mixed in measured quantities. To produce good quality hot

mix asphalt, certain amounts of fine aggregate less than 74 micrometers are required. Today, reclaimed asphalt pavement (RAP) is widely used in the mixture. Aggregate and RAP usually constitute over 92% by weight of the total mixture.

Hot mix asphalt is manufactured by batch mix, continuous mix, parallel flow drum mix, and counterflow drum mix plants, which can be permanent, skid-mounted, or portable. In 1996, there were approximately 2,300 batch plants and 1,000 parallel flow drum mix plants out of 3,600 estimated active hot mix asphalt plants in the United States, and they produced approximately 240 million tons and 260 million tons, respectively. Today, the majority is the counterflow drum mix plants (about 85%) while batch plants and parallel flow drum plants account for 10% and 5% of the total, respectively.

In general, at the hot mix asphalt plants, dust particulates are generated during conveying, screening, and mixing of materials, as well as from aggregate open storage piles. The movement of heavy trucks on unpaved or dusty surfaces around the plants also generates dust. Typical dust controls may include water sprays, hoods, enclosures, and baghouses.

Batch Mix

With the batch mix process, aggregate is dried by a rotary dryer. The hot aggregate is then screened, and according to its grade (size), is transferred to individual bins over a weight hopper. The aggregate with desired mix and weight is dry-mixed in a mixer (pug mill) for 6 to 10 seconds. The appropriate amount of liquid asphalt cement and RAP are transferred to the pug mill. The total mixing time usually is less than 60 seconds. The hot mix is stored in a silo or transferred directly into an asphalt truck.

Parallel Flow Drum Mix

With the parallel flow drum mix process, the size-graded aggregate is transferred to the drum at the burner end. As the drum rotates, the aggregate and the combustion products move parallel toward the other end of the drum. Appropriate amount of liquid asphalt cement is introduced in the mixing zone located in the middle of the drum. The mixture is discharged at the end of the drum and is conveyed to either a surge bin or a silo for loading into a transport truck.

This mixing process captures a substantial amount of aggregate dust, therefore, lowering the load on the downstream PM₁₀ collection equipment. As a result, only primary dust collection equipment such as baghouse is needed.

Counterflow Drum Mix

With the counterflow drum mix process, the aggregate flow in opposite direction to the exhaust gases. In addition, the liquid asphalt cement mixing zone is located behind a burner flame zone. As a result, this process is expected to generate less organic emissions compared to the parallel flow drum mix.

Available Control Technologies:

Available control technologies include, but are not limited to, the following:

- Open Conveyors With Dust Suppressant
- Dust Suppressants
- Rumble Grates
- Wheel Washers
- Truck Transport
- Open Storage Piles And Material Handling

Open Conveyors With Dust Suppressants

An automated dust suppressant spray system can be installed at the transfer points to dampen or stabilize materials transported on open or partially enclosed conveyors; hence would lessen PM₁₀ emissions. For open or partially enclosed conveyors and tunnel feeds, a daily good housekeeping is essential to inspect fallout of materials from belt vibrations, and from residual materials that adhere to the belt and fall out on the belt return side. These control methods are commercially available and currently are implemented by many affected facilities.

Dust Suppressants

Dust suppressants, including water and chemical surfactant (in both liquid and foam forms), are utilized to suppress the formation of airborne dust. The liquid spray dust suppression system is utilized to control PM₁₀ emissions from material handling at conveyor transfer points and to stabilize open storage piles as well as unpaved roads. The wetting agent can be water or a combination of water and chemical surfactant. There are several types of chemical surfactants commercially available; however, magnesium chloride and calcium chloride are the most popular. According to the 1983 EPA's research, chemical surfactant reduces the surface tension of water; hence, reduces the quantity of water necessary to achieve a good control by a minimum ratio of 4:1.

South Western Sealcoating, Inc., a vendor of a magnesium chloride product, indicated that magnesium chloride has been used for years by the mining industry on haul roads. The Arizona Department Of Environmental Quality, Office Of Water Quality has granted permission for the use of magnesium chloride dust suppressants.

Micron-sized foam application is an alternative to water spray system. The foam system can provide greater control at lower additional moisture rate than liquid spray system; however, the foam should be distributed throughout the materials rather than covering them. In addition, the amount applied should allow foam to dissipate. The presence of foam in the materials indicates that either too much foam was used or foam was not adequately dispersed within the materials.

According to the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004, the 1997 South Coast Air Quality Management District staff report for Rule 1186 (applicable to unpaved roads within the South Coast Air Basin) includes the following emission reduction percentages for various control options: 94% reduction for paving, 75% reduction for applying chemical stabilizers, and 50% reduction for a 15 mph speed limit. And

based on the Texas Commission for Environmental Quality general permit application for concrete batch plants, the emissions reduction percentages can be achieved for the following controls: 80% reduction for oiling unpaved roads, 85% reduction for application of chemical foam, 90% reduction for paving and sweeping, 95% reduction for paving and watering, 98% reduction for paving and wet sweeping, and 99% reduction for paving and foam application. The Department calculated haul road emissions for plants ranging from 41 tons per year to under 1 ton per year for smaller facilities conducting only one process. These estimates assume, with watering, a 70% effective rate and a 77% compliance rate.

Costs for unpaved road treatment were estimated in the 1997 South Coast Air Quality Management District Rule 1186 staff report to be \$350,000 per mile of paved road, \$16,107 per mile using chemical stabilizers, \$800 total per mile for speed limit reduction based upon \$200 per sign and 4 signs per mile. The overall cost-effectiveness of the South Coast Air Quality Management District Rule 1186 unpaved road treatment requirements was estimated at \$958 per ton of PM₁₀ reduction.

Rumble Grates

Rumble grates are wheel shaker devices consisting of raised dividers (rails, pipe, or grate) of minimum three inches tall and six inches apart and 20 feet long. As a vehicle passes over the rumble grate, vibration is produced to shake dust off the wheels.

According to the South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, each rumble grate is estimated to cost \$5000 with an additional \$500 for installation. Rumble grates are expected to last 10 years. Chapter 4 of the Technical Support Document For The Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004 discusses contributions from trackout. Based on a survey of the extent and silt loading from trackout, the plan applies an emission factor of 12 g/VMT for industrial trackout from these facilities and assumes a distance of 200 metres. Using these factors, emissions from trackout are estimated to range from 1.9 tons per year, if the plant is located on a road with an average daily traffic (ADT) rate of 3,200, to 15.5 tons per year, if the plant is located on a road with an ADT rate of 26,100.

Wheel Washers

A wheel washer is a washing pit or trough through which a vehicle passes in order to remove rocks and dirt from vehicle wheels and wheel wells. The purpose of a wheel washer is to reduce the amount of rock and rock carried by vehicles from work sites onto public roads, thus lessening the need for street sweeping and creating cleaner, less-dusty work sites.

According to Teichert Materials, there are two basic types of wheel washers: basin and pressurized. Basin-type wheel washers are flooded with water and rumble strips are often used to agitate tire treads. Pressurized-type wheel washers may use high or low pressure systems. Low

pressure systems employ horizontal spray bars to wash tires. High pressure systems employ horizontal or vertical spray bars to wash tires. The advantage of high pressure systems is less water consumption.

At quarries, stormwater permits regulate discharge. A wheel washer at a permitted quarry cannot use anything other than fresh water or "recycled" water. Typically, a quarry will drain dirty water back to large retention ponds, where fines settle. Recycled water is then pumped from the retention ponds back to the quarry for use. Recycled water is often used to wash stone products as well as to stabilize roads or to wash vehicle wheels via a wheel washer. If the retention ponds are large enough the recycled water will appear visibly clean.

However, if a quarry or work site is not large enough for a retention pond with ample space/volume for fines to settle, a quarry or work site can install a water treatment facility where chemical agents (i.e., flocculants) are used to accelerate the settling rate. For a large aggregate plant, for example, installing a water treatment facility could cost well over \$100,000.

Alternatively, filters can be used to clean and recycle water. Filters can be as simple as a row of containers fitted with porous liners or as sophisticated as self-cleaning sand or bead filters. For facilities with less than 100 trucks exiting per day, a dewatering bin could be used to clean or recycle water. A dewatering bin consists of containers fitted with filter liners. A dewatering bin is capable of removing any particulate above 150 microns. The maintenance costs of a dewatering bin might be too onerous for large facilities.

For a wheel washer, "very" clean water to wash tires is not as important as getting the tires dry before a vehicle exits the site. Getting the tires dry requires 1000-1500 feet of paved road from the exit of the wheel washer to the exit of the site. This distance is often not feasible, because most facilities do not have the benefit of 1500 feet of paved road to the exit. Consequently, when a vehicle exits the site when the vehicle tires are still wet, the water that the vehicle and its tires track onto a public road contains very fine sediments, even though such vehicle and its tires have been "washed" in a wheel washer. When the water that has been tracked onto a public road evaporates, the surface of the public road is left coated with the very fine sediments and the purpose of the wheel washer has been defeated. Although having very fine sediments on a public road is considered trackout, the amount or degree of trackout could appear/be skewed. Because very fine sediments scatter light easily, the fugitive dust emissions created from traffic traveling over such very fine sediments is sometimes disproportionate to the actual amount of sediment tracked out onto the public road, especially in the light of sunrise and sunset.

Makers of wheel washers include Frutiger and National Environmental Service Company (NESCO). There are approximately 16 Frutiger wheel washers in operation in the United States (e.g., landfill operation in Oklahoma, Hilltop Quarry in Kentucky, and Sierra Rock in Placerville; 1000 worldwide (e.g., Duffiren Quarry in Toronto, Canada). Frutiger wheel washers are high volume/low pressure systems with approximately 190 nozzles per wheel washer unit. NESCO's

wheel washers include a 20-horsepower high pressure pump that sends approximately 40 gallons of water per truck from a well, pond, or city water line to spray bars at a rate of 160 gallons per minute.

According to the South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, the installation cost of a wheel washer, including soil preparation, is approximately \$10,000. Wheel washers are expected to last 10 years. Emissions from trackout are discussed in the prior section regarding rumble grates. Additional wheel washer statistics, based on information obtained from the National Environmental Service Company (NESCO), are summarized in the following table:

Wheel Washer Site	Water Requirements For Wheel Washer	Number Of Trucks Exiting Site Thru Wheel Washer	Approximate Cost Of Wheel Washer Construction	Approximate Cost To Maintain Wheel Washer
Cadman North Bend, Washington	250 gallons per minute at 45 seconds per truck. No dryer. 750 feet of asphaltic concrete prior to plant exit.	150-300 per day	\$200,000	Tank clean-out estimated monthly
Cadman Aggregates North Bend, Washington	Closed loop system with 30,000 gallon storage tank/separator		\$200,000	Wheel washer was part of permit condition for mining
Vernalis	3,000 gallons processed at approximate 30 psi per wash cycle at 40-50 seconds per truck passing-thru at 4-5 miles per hour	60-70 per hour	\$52,500	2-year warranty for pumps (three to four 7.4 hp submersible slurry pumps included and modeled after Tsurumi style; each pump 430 gallons per minute at 30 psi)
Granite Rock, Sparks, Nevada	Drive-through trough applying recycled water and discharging water into settling pond system through spillway and cattle guard system with running water and shaking-off of additional debris at point of exit.		\$40,000	
Granite Construction Sacramento, California	Fill up as needed. Water is constantly re-circulated with a concrete clean out pit for solids; pump horsepower is 25. 10 nozzles per lane (total of 3 lanes) discharge water onto the wash ramp. Grade of the entire wheel washer is approximately 6%-7%.		\$150,000	Clean out pit as needed

	No dryer. 150 feet of asphaltic concrete prior to plant exit.			
Hansen Aggregates Cupertino, California	Open loop system uses virgin well water. Discharge water is piped over to the plant to be used as process water. Water is gravity fed to a concrete weir settling system to remove solids prior to becoming plant process water.		\$200,000	Plant is located in neighborhood, which was driving force for installation of wheel washer

Truck Transport

Trucks/trailers with open tops that are used to transport aggregates need to be leveled and covered with tarps. In addition, haul/access roads and facility entries and exits are required to be stabilized with pavement, a cohesive hard surface, gravel or other suitable material, or a dust suppressant, other than water. According to South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, if unpaved roads are stabilized with a dust suppressant, other than water, then the cost is estimated to be 2 cents per square feet of treated area (including labor) with an application frequency of twice per year.

Open Storage Piles And Material Handling

Operations that use minerals in aggregate form typically have open storage piles and material handling activities/areas. Material handling activities/areas and open storage piles are often left uncovered, partially because of the need for frequent material transfer into or out of storage. As a result, material handling activities/areas and open storage piles are significant sources of particulate matter emissions. As front loaders and trucks add and remove materials from these points, a significant amount of particulate matter emissions are generated.

Currently, Rule 310 (Fugitive Dust) includes fugitive dust control measures for open storage piles at industrial sources and construction sources. The revisions in Rule 316 include fugitive dust control measures specific to open storage piles and material handling activities/areas at nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but a particular activity is not subject to the specific fugitive dust control measures in Rule 316, such activity would be subject to the fugitive dust control measures in Rule 310.

Maricopa County Resources:

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 include fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but not to the specific fugitive dust control measures in Rule 316, such source would be subject to the fugitive dust control measures in Rule 310.

Maricopa County currently has nine inspectors, two supervisors, and four technical staff to inspect and determine compliance at stationary sources. No change in funding is anticipated because of the revisions to Rule 316. However, Maricopa County will increase inspection frequency for sources subject to Rule 316, beginning July 1, 2005, from one every two years to four times per year. Maricopa County re-evaluated the workload for the increase inspection frequency and has proposed a fee increase to cover those additional costs in a separate Notice of Proposed Rulemaking.

Maricopa County Emissions Inventory:

The Maricopa County Air Quality Department has primary responsibility for preparing and submitting periodic PM₁₀ emissions inventories for the Maricopa County PM₁₀ nonattainment area. A periodic PM₁₀ emissions inventory includes point, area, and nonroad mobile source emission estimates.

In June 2004, Maricopa County completed the 2002 periodic PM₁₀ emissions inventory. In preparing the 2002 periodic PM₁₀ emissions inventory, Maricopa County identified point, area, and nonroad mobile sources through its permit system database, 2002 annual emissions reports, Maricopa County investigation reports, permit files and logs, or telephone contacts with sources. In addition, Maricopa County reviewed the Maricopa County Air Quality Permit system to locate sources that were not included in the previous emission inventory and to identify sources that have ceased operations since the 1999 periodic inventory was compiled.

For the purposes of the 2002 periodic PM₁₀ emissions inventory, point sources included those stationary sources within Maricopa County or within 25 miles of the Maricopa County PM₁₀ nonattainment area, which in 2002 emitted five tons or more of PM₁₀. Point sources identified in the 2002 periodic PM₁₀ emissions inventory that are subject to Rule 316 fell into three point source categories: (1) sand and gravel, (2) unpaved road travel, and (3) asphalt, concrete, and tile. The annual tons per year of PM₁₀ emitted and the daily pounds per day of PM₁₀ emitted from these three point source categories are listed in the table below on the following pages.

For the purposes of the 2002 periodic PM₁₀ emissions inventory, area sources included those stationary sources that were too small or too numerous to be treated as point sources. Areas sources identified in the 2002 periodic PM₁₀ emissions inventory that are subject to Rule 316 fell into three area source categories: (1) nonmetallic mineral processes, (2) mining and quarrying, and (3) paved/unpaved road travel on industrial sites. Annual tons per year of PM₁₀ emitted from the nonmetallic mineral processes category totaled 87.11, from the mining and quarrying category totaled 28.43, and from the paved/unpaved road travel on industrial sites category totaled 74.58. Daily pounds per day of PM₁₀ emitted from the nonmetallic mineral processes category totaled 670.1, from the mining and quarrying category totaled 177.1, and from the paved/unpaved road travel on industrial sites category totaled 543.0.

Industry Classification	Point Source Categories					
	Sand & Gravel		Unpaved Road Travel		Asphalt, Concrete, And Tile	
	Tons/Year PM ₁₀	Lbs/Day PM ₁₀	Tons/Year PM ₁₀	Lbs/Day PM ₁₀	Tons/Year PM ₁₀	Lbs/Day PM ₁₀
NAICS 212321 Construction Sand & Gravel Mining This U.S. industry comprises establishments primarily engaged in one or more of the following: (1) operating commercial grade (i.e., construction) sand and gravel pits; (2) dredging for commercial grade sand and gravel; and (3) washing, screening, or otherwise preparing commercial grade sand and gravel	27.28	178.7	98.12	660.0	0.00	0.00
NAICS 327123 Other Structural Clay Product Manufacturing This U.S. industry comprises establishments primarily engaged in manufacturing clay sewer pipe, drain tile, flue lining tile, architectural terra-cotta, and other structural clay products	0.64	5.0	0.13	1.0	0.19	1.5
NAICS 327390 Other Concrete Product Manufacturing This industry comprises establishments primarily engaged in manufacturing concrete products (except block, brick, and pipe)	0.16	1.0	4.59	35.3	0.45	2.9

Industrial Classification	Point Source Categories					
	Sand & Gravel		Unpaved Road Travel		Asphalt, Concrete, And Tile	
	Tons/Year PM ₁₀	Lbs/Day PM ₁₀	Tons/Year PM ₁₀	Lbs/Day PM ₁₀	Tons/Year PM ₁₀	Lbs/Day PM ₁₀
NAICS 311942 Spice And Extract Manufacturing This U.S. industry comprises establishments primarily engaged in (1) manufacturing spices, table salt, seasonings, flavoring extracts (except coffee and meat), and natural food colorings and/or (2) manufacturing dry mix food preparations, such as salad dressing mixes, gravy and sauce mixes, frosting mixes, and other dry mix preparations	2.05	17.2	0.19	1.5	0.00	0.00
NAICS 327420 Gypsum Product Manufacturing This industry comprises establishments primarily engaged in manufacturing gypsum products such as wallboard, plaster, plasterboard, molding, ornamental moldings, statuary, and architectural plaster work. Gypsum product manufacturing establishments may mine, quarry, or purchase gypsum	0.75	9.6	1.78	11.4	4.13	26.1
NAICS 327999 All Other Miscellaneous Nonmetallic Mineral Product Manufacturing This U.S. industry comprises establishments primarily engaged in manufacturing nonmetallic mineral products (except pottery, ceramics, and plumbing fixtures; clay building materials and refractories; glass and glass products; cement; ready-mix concrete; concrete products; lime; gypsum products; abrasive products; cut stone and stone products; ground and treated minerals and earth; and mineral wool)	4.26	25.8	8.22	63.2	0.00	0.00
NAICS 332312 Fabricated Structural Metal Manufacturing This U.S. industry comprises establishments primarily engaged in fabricating structural metal products, such as concrete reinforcing bars and fabricated bar joists	6.52	41.8	1.16	7.4	0.00	0.00

Industrial Classification	Point Source Categories					
	Sand & Gravel		Unpaved Road Travel		Asphalt, Concrete, And Tile	
	Tons/Year PM ₁₀	Lbs/Day PM ₁₀	Tons/Year PM ₁₀	Lbs/Day PM ₁₀	Tons/Year PM ₁₀	Lbs/Day PM ₁₀
NAICS 21231 Stone Mining And Quarrying This industry comprises (1) establishments primarily engaged in developing the mine site, mining or quarrying dimension stone (i.e., rough blocks and/or slabs of stone), or mining and quarrying crushed and broken stone and/or (2) preparation plants primarily engaged in beneficiating stone (e.g., crushing, grinding, washing, screening, pulverizing, and sizing)	2.22	17.0	3.28	25.3	0.00	0.00
NAICS 32739 Other Concrete Product Manufacturing This industry comprises establishments primarily engaged in manufacturing concrete products (except block, brick, and pipe)	0.09	0.6	5.54	42.6	0.94	6.6
NAICS 32412 Asphalt Paving, Roofing, And Saturated Materials Manufacturing This industry comprises establishments primarily engaged in (1) manufacturing asphalt and tar paving mixtures and blocks and roofing cements and coatings from purchased asphaltic materials and/or (2) saturating purchased mats and felts with asphalt or tar from purchased asphaltic materials	2.17	15.5	7.96	61.2	0.21	1.6

Using the 2002 PM₁₀ emissions data from the Maricopa County 2002 periodic PM₁₀ emissions inventory and using the data from a base year emissions inventory that was collected from an extensive field study, ADEQ, for the purposes of the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004, categorized PM₁₀ emissions from industrial sources located throughout the Salt River study area in the following four groups:

- Windblown Stockpiles
- Windblown Cleared Areas
- Industrial Point Sources
- Industrial Area Sources (including emissions from material handling, processes, and driving on haul roads)

Also, for the purposes of the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004, ADEQ determined that, within the Industrial Point Sources

industrial group and within the Industrial Area Sources industrial group, the following industrial activities were being conducted:

- Aluminum Melting
- Brick Kilns
- Asphalt Batch Plants
- Concrete Batch Plants
- Mulch Manufacturing
- Steel Fabrication
- Sand And Gravel Mining
- Furniture Manufacturing
- Concrete Block Manufacturing
- Wastewater Treatment

All industrial sources in the Salt River State Implementation Plan study area were evaluated for compliance with best available control measures (BACM) and most stringent measures (MSM). Only those sources that did not meet BACM and MSM were evaluated further. Because industrial sources were significant - the vast majority of these emissions came from nonmetallic mineral processing operations – and because the current controls on this industry warranted further evaluation, most of the emphasis for the industrial source control measures was on nonmetallic mineral processing operations.

Health Costs:

PM₁₀ is a public health concern since particles of less than 10 microns in size can be deposited in, and can damage the airways of the lower respiratory tract and the gas-exchange portions of the lung. The adverse health effects of particulates, especially PM₁₀, are well documented. Various health studies have linked PM₁₀ emissions to increased respiratory infections, more severe asthma, declines in pulmonary function, and shortened life spans. Current ambient levels of PM₁₀ (30 to 150 micrograms per cubic meter) are associated with increases in the number of people that die daily from heart or lung failure. Most of these deaths are common among the elderly. However, there is strong evidence that some children are also adversely affected by PM₁₀ emissions. The Children's Health Study conducted by USC Keck School of Medicine reveals that significant lung function deficits are closely associated with exposures to particulates, nitrogen dioxide, and atmospheric acidity, and that decreased lung development may have permanent adverse effects in adulthood. The study also concludes that children who move into cleaner communities with lower levels of PM₁₀ have improvement in lung function growth rates. This conclusion means that even small emission reductions can have immediate benefits to the long-term respiratory health of children living in polluted communities.

Increases in ambient PM₁₀ levels have also been shown to result in increases in acute respiratory hospital admissions, school absences in children, and increases in the use of

medications in children and adults with asthma. The American Thoracic Society's Environmental And Occupational Health Assembly reviewed current health effects literature. They report that daily fluctuations in PM₁₀ levels have been related to: acute respiratory hospital admissions in children; school and kindergarten absences; decreases in peak lung air flow rates in normal children; and, increased medication use in children and adults with asthma.

Because Maricopa County is a serious nonattainment area for PM₁₀, it is imperative to consider the medical and social costs of failing to take steps toward the improvement of the air quality. Adverse health effects from air pollution result in a number of economic and social consequences, including:

1. Medical Costs - Personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.
2. Work loss – Lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.
3. Increased Costs For Chores And Caregiving – Special caregiving and services that are not reflected in medical costs. These costs may occur, because some health effects reduce the affected individual's ability to undertake some or all normal chores. The affected individual may require extra care.
4. Other Social And Economic Costs – Restrictions on or reduced enjoyment of leisure activities, increased discomfort or inconvenience, increased pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Rule Impact On Small Businesses:

ARS §41-1055 requires Maricopa County to reduce the impact on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in ARS §41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations." Maricopa County solicited input from stakeholders (i.e., small businesses) regarding administrative costs associated with compliance with proposed rulemakings and any other information relevant to the economics, small business, and consumer impact statement.

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 include fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but not to the specific fugitive dust control measures in Rule 316, such source would be subject to the fugitive dust control measures in Rule 310.

Because some of the revisions to Rule 316 apply to facilities/businesses that, by definition, are “larger” than small businesses (i.e., facilities with a rated or permitted capacity of 25 tons or more of material per hour and facilities with a minimum of 60 trucks exiting a facility on any day), some small businesses may not be affected by the revisions to Rule 316. Those small businesses that are required to comply with the revisions to Rule 316 may have less strict requirements with which to comply. For example, Rule 316 allows facilities with less than 60 trucks on-site per day to sweep paved facility roads less frequently than larger facilities.

Conclusion:

Rule 316 limits the emission of particulate matter (PM₁₀) into the ambient air from any commercial and/or industrial nonmetallic mineral processing plant and/or rock product plant. Maricopa County has revised Rule 316 in order to address best available control measures (BACM) and most stringent measures (MSM) described in the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004.

According to the Final Revised PM₁₀ State Implementation Plan For The Salt River Area dated August 2004, industrial sources with a variety of particulate matter emissions (i.e., nonmetallic mineral processing plants, asphaltic concrete plants, concrete plants and/or bagging operations, and/or rock product plants) are located throughout the Salt River State Implementation Plan Study Area. These emissions are categorized into four groups: windblown stockpiles, windblown cleared areas, industrial point sources, and industrial area sources including emissions from material handling, processes, and driving on haul roads. Considering the application of control technologies in accordance with permit requirements, the total emissions generated by the industrial sources in the Salt River State Implementation Plan Study Area are approximately 1,054,000 pounds per year, based on actual emissions reported in the Maricopa County 2002 emissions inventory and on independent calculations of windblown emissions based on six high-wind days with four hours of high wind per day in a year.

In order to reduce emissions from nonmetallic mineral processing plants, asphaltic concrete plants, concrete plants and/or bagging operations, and/or rock product plants, the revisions to Rule 316 include process controls (i.e., enclosures, watering systems, operational overflow warning systems/devices, and fabric filter baghouses), process emission limitations (i.e., stack emissions limitations), fugitive dust emission limitations (i.e., 20% opacity limit, 0% opacity limit at the property line, silt loading limit, silt content limit, and stabilization standards), and fugitive dust

control measures (i.e, during a wind event, for open storage piles and material handling, haul/access roads, on-site traffic, off-site traffic, trackout, spillage, and night-time operations).

According to the Revised PM₁₀ State Implementation Plan For The Salt River Area-Technical Support Document dated October 2004, with the industrial sources' implementing the new requirements in Rule 316, the percent change in emissions between 2002 and 2006 can occur in the following categories (the amounts of percent change in emissions is described below the list of categories):

- Trackout
- Industrial Area Sources
 - Material Transfer
 - Pile Forming/Loading
 - Crushing And Screening
 - Concrete Plant And/Or Bagging Operations
 - Asphaltic Concrete Plants
- Windblown Industrial Emissions
 - Stockpiles

Trackout

An Arizona Department Of Environmental Quality (ADEQ) survey conducted in May 2004 divided trackout into these six categories and subdivided each category into three levels: light, medium, and heavy. Weighting these trackout contributions to ambient PM₁₀ concentrations by the typical length and severity of the trackout showed that the industrial category accounted for about 85% of the total trackout contribution. Construction contributed 7%, road shoulders 3%, and agricultural 2%. Trackout emissions were assumed to be reduced 80% by a combination of more frequent sweeping targeted at the problem streets and of reduced trackout from all the categories, but especially the industrial category. This was assumed to be the result of the more stringent requirements in Rule 316 and from better enforcement of Rule 310, Rule 310.01, and Rule 316.

Industrial Area Sources

A 60% reduction in PM₁₀ emissions from industrial area sources is assumed to be obtained through a strengthened Rule 316. Industrial area sources are defined as all sources of emissions from the industrial facilities in the Salt River Area, except registered stacks (or "points") and windblown dust. This category includes such activities as driving on haul roads (56% of the emissions total), material transfer (20%), pile forming and loading (8%), crushing and screening (6%), and a variety of other activities that contribute the remaining 10%. Emission reductions from 65% to 70% for the first four of these activities would result in the overall 60% reduction.

- Material Transfer

A 65% reduction in PM₁₀ emissions from industrial area source-material transfer is assumed to be obtained from a Rule 316 fenceline opacity requirement of 0%, except on high wind

days when reasonable precautions have been employed. In order for sources to achieve compliance with this requirement, it is assumed that material transfer points will be controlled through the application of additional water control systems, increased material moisture content, and voluntarily applied enclosures.

- Pile Forming/Loading

A 70% reduction in PM₁₀ emissions from industrial area source-pile forming/loading is assumed to be obtained from a Rule 316 fenceline opacity requirement of 0%, except on high wind days when reasonable precautions have been employed. In order for sources to achieve compliance with this requirement, it is assumed that stockpiles will be controlled through the application of additional water control systems, increased material moisture content, or the application of storage pile covers and partial enclosures. Additionally, loaders and all other ancillary equipment will be required to operate on controlled surface areas.

- Crushing And Screening

A 70% reduction in PM₁₀ emissions from industrial area source-crushing and screening is assumed to be obtained from a Rule 316 fenceline opacity requirement of 0%, except on high wind days when reasonable precautions have been employed. In order for sources to achieve compliance with this requirement, it is assumed that sources will install and operate permanently mounted watering systems on the inlet and outlet of all crushers and on the outlet of all shaker screens and material transfer points. In addition, it is assumed that sources will enclose the sides of all shaker screens.

- Concrete Plant And/Or Bagging Operations

It is assumed that sources will install properly-sized fabric filter baghouses with maximum outlet grain loading of 0.01 gr/dscf and install an operational overflow warning system/device designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.

- Asphaltic Concrete Plants

It is assumed that for non-rubberized asphaltic concrete plants, sources will prohibit stack emissions from exceeding 5% opacity and from containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period. Also, it is assumed that for rubberized asphaltic concrete plants (when producing rubberized asphalt only), sources will prohibit stack emissions from exceeding 20% opacity and from containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.

Windblown Industrial Emissions

Particulates from the disturbed ground surface of industrial area sources are an important contributor to elevated PM₁₀ levels. The contribution of windblown industrial emissions to elevated PM₁₀ concentrations for six high-wind exceedances varies from 1.6% to 21.9%, with an average of 10.4%. On average there are fewer than 12 days a year when the wind speeds exceed

the re-suspension threshold for dust. It is assumed that industrial area sources can take the appropriate actions of watering, tarping, and/or ceasing activities on the few occasions when winds approach and exceed the dust suspension threshold. A 75% reduction in PM₁₀ emissions from industrial area source would entail implementation of control measures, such as wetting the surface areas prone to erosion when high winds are forecast, and would be based on the following three components:

1. Rule Effectiveness: 85%, which accounts for failures and uncertainties that affect the actual performance of a control.
2. Rule Penetration: 100%, which is the percentage of a source category covered by a regulation.
3. Control Efficiency: 90%, which is the efficiency of a control device or process change.

Multiplying these percentages gives an equivalent control percentage of 76.5%. There are 36 industrial sources in a 32 square mile area and no more (at its closest point) than a five minute drive from the Maricopa County offices. A rule effectiveness of 85% means that there would be 31 industrial sources of 36 industrial sources actively taking the necessary precautions to reduce windblown dust about 12 times a year.

Given the small number of industrial sources, given their proximity to the Maricopa County offices, and given the fact that the industrial sources are already equipped with the means to suppress dust, it's not unreasonable to assert that windblown industrial emissions can in fact be reduced by 75% by 2006. The assumption of 0% equivalent control for 2002 for industrial sources is based on the fact that no citations for windblown industrial emissions were issued in 2002 in the Salt River area; no evidence would suggest that precautions were being taken; and concentrations ranging from 174 µg/m³ to 249 µg/m³ of PM₁₀, averaged for 24 hours, were recorded at three monitoring sites close to these industrial sources. The Arizona Department Of Environmental Quality's analysis of emissions and air quality data from these three sites has demonstrated that their elevated PM₁₀ concentrations are in part (average 10%) attributable to windblown industrial emissions. All of these facts lead to the conclusion that control over this source category in 2002 was minimal, if not zero.

- Stockpiles

A 55% reduction in PM₁₀ emissions from windblown industrial emissions-stockpiles is assumed to be obtained from a Rule 316 fenceline opacity requirement of 0%, except on high wind days when reasonable precautions have been employed. It was assumed that sources will apply watering controls and will arrange stockpiles such that stockpiles of larger diameter products are on the perimeter and act as barriers to/for stockpiles that could create fugitive dust emissions.

10. Description of the changes between the proposed rules, including supplemental notices, and final rules:

Since the final draft of Rule 316 was published in the Notice Of Proposed Rulemaking on February 4, 2005, the following changes are being proposed:

- Section 201 Delete “excavates and”. Add “excavating”. The proposed definition of affected operation is an operation that “excavates and processes” nonmetallic minerals. Since by definition of nonmetallic mineral processing, processing includes “mining, excavating, separating, combining, crushing, or grinding any nonmetallic mineral” and since excavating is not involved in every operation, then the definition of affected operation can read, in part, “an operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating...”
- Section 226 Delete definition in its entirety, because the term “geotextile” is not used in Rule 316 – with the deletion of the geotextile lining requirement from Section 307.6(b)(4). See Section 307.6(b)(4) below.
- Section 234 Delete “mined or excavated by such facility”. Add “operated”.
- Section 237 Delete definition in its entirety. Section 237-Definition Of Open Areas And Vacant Lots was proposed to be added to Rule 316, in order to match Rule 310-Fugitive Dust. However, the term is not used and/or referred to in Rule 316.
- Section 250 Add definition of silo, because the term “silo” is used in Rule 316 but is not defined. The definition of silo will match the definition of silo used in South Coast’s Rule 1157 (PM₁₀ Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
- Section 255 Delete definition of storage bin in its entirety, because the term is not used in Rule 316.
- Section 263 Delete definition in its entirety. Section 263-Definition Of Urban Or Suburban Area was proposed to be added to Rule 316, in order to match Rule 310-Fugitive Dust. However, the term is not used and/or referred to in Rule 316.
- Section 266 Delete definition in its entirety. Section 266-Definition Of Wind-Blown Dust was proposed to be added to Rule 316, in order to match Rule 310-Fugitive Dust. However, the term is not used and/or referred to in Rule 316.
- Section 306.3(c)(2)(b) Add the text “if open storage pile is less than eight feet high”. As originally proposed, Rule 316 required open storage piles – regardless of size – to be covered, as a fugitive dust control measure. However, since covering open storage piles can be a safety hazard and can be difficult due to the non-static/changeable nature of open storage piles, Rule 316 will require

covering open storage piles, only if open storage piles are less than eight feet high. If open storage piles are more than eight feet high, then Rule 316 will allow other options for fugitive dust control.

- Section 307 Add text that allows the owner and/or operator of a facility subject to Rule 316 to develop and implement alternative fugitive dust control measures – alternative to those required by Rule 316.
- Section 307.1(d) Delete Section 307.1(d)(1) and Section 307.1(d)(2). Move Section 307.1(d)(3) to introduction of Section 307.1(d). Blading to the top of open storage piles or installing a sprinkler irrigation system on open storage piles were included as options for fugitive dust control. However, since blading to the top of open storage piles can be a safety hazard and since installing a sprinkler irrigation system on open storage piles is difficult due to the non-static/changeable nature of open storage piles, such options should be deleted from Rule 316.
- Section 307.3(a) Delete Section 307.3(a)(7). Add such text to Section 307.3(a)(2). Combine the fugitive dust control measures - limiting vehicle speeds on haul/access roads and applying water, as necessary.
- Section 307.4(d) Delete Section 307.4(d). Although deleting Section 307.4(d) deletes the specific fugitive dust control measures for hauling and/or transporting bulk material on-site from Rule 316, such fugitive dust control measures will still be required under Rule 316, Section 304, which states “All other affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules”.
- Section 307.6(a) Add “conditions”. Add the following sentence to the end of Section 307.6(a): “For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (the owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the wash, is installed, maintained, and used in accordance with criteria in Section

307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility”.

Section 307.6(b)(4) Delete the geotextile lining requirement from Section 307.6(b)(4)(b). Delete Section 307.6(b)(4)(c) and add such text to Section 307.6(b)(4)(a) and Section 307.6(b)(4)(b).

Section 307.6(e)(1) Add a provision that street sweeping at the end of each production work shift (an 8-hour operating period based on the 24-hour operating schedule) only has to be done when there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road. The 12 linear feet trigger should be stringent enough to ensure that re-entrained dust on internal paved roads is controlled.

Section 401 Change the compliance schedule in Section 401 to reflect the new tentative adoption date of Rule 316.

11. Summary of the comments made regarding the rules and the department’s response to them:

A summary of the comments made during the formal comment period (February 2005-March 2005) and Maricopa County’s responses will be provided in this draft Notice Of Final Rulemaking at a later date – but no later than June 8, 2005.

12. Any other matters prescribed by the statute that are applicable to the specific department or to any specific rule or class of rules:

None

13. Incorporations by reference and their location in the rules:

<u>Incorporation By Reference</u>	<u>Location</u>
EPA Reference Methods 1 - 5	Rule 316, Section 502.1
ASTM Method D2216-98	Rule 316, Section 503.1
ASTM Method D1557-91	Rule 316, Section 503.2
Appendix C (Fugitive Dust Test Methods)	Rule 316, Section 504
South Coast Air Quality Management Rule 1186 Street Sweeping Certification List	Rule 316, Section 505

14. Was this rule previously an emergency rule?

No

15. The full text of the rules follows:

REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 316
NONMETALLIC MINERAL MINING AND PROCESSING
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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 316
NONMETALLIC MINERAL MINING AND PROCESSING**

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of particulate matter into the ambient air from any nonmetallic ~~mining operation~~ mineral processing plant ~~or~~ and/or rock product processing plant.

102 APPLICABILITY: The provisions of this rule shall apply to any commercial and/or industrial nonmetallic mineral ~~mining~~ processing plant and/or rock product processing plant operation. Compliance with the provisions of this rule shall not relieve any person subject to the requirements of this rule from complying with any other federally enforceable New Source Performance Standards. In such case, the more stringent standard shall apply.

SECTION 200 - DEFINITIONS: ~~For the purpose of this rule, the following definitions shall apply: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:~~

201 AFFECTED OPERATION - An operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating, crushers, grinding mills, screening equipment, conveying systems, elevators, transfer points, bagging operations, storage bins, enclosed truck and railcar loading stations, and truck dumping.

202 AGGREGATE TRUCK – Any truck with an open top used to transport the products of nonmetallic mineral processing plants and/or rock product processing plants.

~~202~~ **203 APPROVED EMISSION CONTROL SYSTEM** - A system for reducing particulate emissions, consisting of collection and/or control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

- 204** **AREA ACCESSIBLE TO THE PUBLIC** - Any retail parking lot or public roadway that is open to public travel primarily for the purposes unrelated to the dust generating operation.
- 203** **205** **ASPHALTIC CONCRETE PLANT/ASPHALT PLANT** - Any facility used to manufacture asphaltic concrete by mixing graded aggregate and asphaltic cements.
- 204** **206** **BAGGING OPERATION** - The mechanical process by which bags are filled with nonmetallic minerals.
- 207** **BATCH TRUCK** – Any truck that loads and transports products produced by batch.
- 205** **208** **BELT CONVEYOR** - A conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.
- 209** **BERMS AND GUARD RAILS** - A pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede the vehicle's passage over the bank of the roadway.
- 210** **BULK MATERIAL** - Any material including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than two inches in length or diameter (i.e., aggregate base course (ABC)), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that are capable of producing fugitive dust.
- 211** **COHESIVE HARD SURFACE** – Any material including, but not limited to, pavement, recycled asphalt mixed with a binder, or a dust suppressant other than water applied and maintained as a roadway surface.
- 206** **212** **CONCRETE PLANT** - Any facility used to manufacture concrete by mixing water, aggregate, and cement.
- 207** **213** **CONVEYING SYSTEM** - A device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include, but are not limited to, feeders, belt conveyers, bucket elevators and pneumatic pressure control systems.

- 208 **214** **CRUSHER** - A machine used to crush any nonmetallic minerals including, but not limited to, the following types: jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.
- 215** **DISTURBED SURFACE AREA** - A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust.
- 209 **216** **DRY MIX CONCRETE PLANT** - Any facility used to manufacture a mixture of aggregate and cements without the addition of water.
- 217** **DUST GENERATING OPERATION** - Any activity capable of generating fugitive dust including, but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.
- 218** **DUST SUPPRESSANT** - Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the EPA or the Arizona Department of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.
- 210 **219** **ENCLOSED TRUCK OR RAILCAR LOADING STATION** - That portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.
- 220** **END OF WORK DAY** – The end of a working period that may include one or more work shifts but not later than 8 pm.
- 221** **FABRIC FILTER BAGHOUSE** - Tube-shaped filter bags/Long small-diameter fabric tubes referred to as ‘bags’ arranged in parallel flow paths designed to separate particles and flue gas.

- 222** **FREEBOARD** - The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.
- 223** **FUGITIVE DUST CONTROL MEASURE** - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.
- 224** **FUGITIVE DUST CONTROL TECHNICIAN** - A person with the authority to expeditiously employ sufficient fugitive dust control measures to ensure compliance with Rule 316 of these rules at an active operation.
- 211 **225** **FUGITIVE DUST EMISSION** - Particulate matter that is not collected by a capture system and that is released to and suspended entrained in the ambient air- and is caused from human and/or natural activities.
- 212 **226** **GRINDING MILL** - A machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.
- 227** **HAUL/ACCESS ROAD** – Any on-site unpaved road that is used by haul trucks to carry materials from the quarry to different locations within the facility.
- 228** **HAUL TRUCK** - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.
- 229** **INFREQUENT OPERATIONS** – Operations that have State mine identification, approved reclamation plans and bonding as required by State Mining And Reclamation Act of 1975, and only operate on an average of 52 days per year over the past three years from (the adoption date of this rule).
- 230** **MATERIAL DELIVERY TRUCK** – Any truck that loads and transports product to customers.

- 231** **MIXER TRUCK** – Any truck that mixes cement and other ingredients in a drum to produce concrete.
- 232** **MOTOR VEHICLE** - A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.
- 233** **NEW FACILITY** - A facility subject to this rule that has not been operated by such facility prior to xxxx xx, 2005 (30 days after the Maricopa County Board Of Supervisors approves/adopts Rule 316).
- ~~213~~ **234** **NONMETALLIC MINERAL** - Any of the following minerals or any mixture of which the majority is any of the following minerals:
- ~~213.1~~ **234.1** Crushed and broken stone, including limestone, dolomite, granite, rhyolite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale, and shell.
- ~~213.2~~ **234.2** Sand and gravel.
- ~~213.3~~ **234.3** Clay including kaolin, fireclay, bentonite, fuller's earth, ball clay, and common clay.
- ~~213.4~~ **234.4** Rock salt.
- ~~213.5~~ **234.5** Gypsum.
- ~~213.6~~ **234.6** Sodium compounds including sodium carbonate, sodium chloride, and sodium sulfate.
- ~~213.7~~ **234.7** Pumice.
- ~~213.8~~ **234.8** Gilsonite.
- ~~213.9~~ **234.9** Talc and pyrophyllite.
- ~~213.10~~ **234.10** Boron including borax, kernite, and colemanite.
- ~~213.11~~ **234.11** Barite.
- ~~213.12~~ **234.12** Fluorspar.
- ~~213.13~~ **234.13** Feldspar.
- ~~213.14~~ **234.14** Diatomite.
- ~~213.15~~ **234.15** Perlite.
- ~~213.16~~ **234.16** Vermiculite.
- ~~213.17~~ **234.17** Mica.
- ~~213.18~~ **234.18** Kyanite including andalusite, sillimanite, topaz, and dumortierite.

- ~~213.19~~ **234.19** Coal.
- 214 **235** **NONMETALLIC MINERAL PROCESSING PLANT** - Any facility utilizing any combination of equipment or machinery that is used to mine, excavate, separate, combine, crush, or grind any nonmetallic mineral including, but not limited to, lime plants, coal fired power plants, steel mills, asphalt plants, concrete plants, Portland cement plants, and sand and gravel plants. Rock Product Processing Plants are included in this definition.
- 236** **OPEN STORAGE PILE** - Any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-01 or other equivalent method approved in writing by the Control Officer and the Administrator of the Environmental Protection Agency (EPA), that the silt content is less than 5%. For the purpose of this rule, the definition of open storage pile does not include berms and guard rails that are installed to comply with 30 Code Of Federal Regulations (CFR) 56.93000.
- 237** **OVERBURDEN OPERATION** – An operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit.
- 215 ~~PARTICULATE MATTER - Any material, except uncombined water, which has a nominal aerodynamic diameter smaller than 100 microns (micrometers), and which exists in a finely divided form as a liquid or solid at actual conditions.~~
- 216 **238** **PARTICULATE MATTER EMISSIONS** - Any and all finely divided solid or liquid materials other than uncombined water released to the ambient air as measured by the applicable state and federal test methods.
- 239** **PAVE** - To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, rubberized asphalt, or recycled asphalt mixed with a binder).
- 240** **PORTLAND CEMENT PLANT** - Any facility that manufactures Portland Cement using either a wet or dry process.

- 241** **PRESSURE CONTROL SYSTEM** - System in which loads are moved in the proper sequence, at the correct time, and at the desired speed through use of valves that control the direction of air flow, regulate actuator speed, and respond to changes in air pressure.
- 247 **242** **PROCESS** - One or more operations including those using equipment and technology in the production of goods or services or the control of by-products or waste.
- 248 **243** **PROCESS SOURCE** - The last operation of a process or a distinctly separate process which produces an air contaminant and which is not a pollution abatement operation.
- 244** **PRODUCTION WORK SHIFT** – An eight hour operating period based on the 24-hour operating schedule.
- 245** **PUBLIC ROADWAYS** - Any roadways that are open to public travel.
- 246** **RETURNED PRODUCTS** – Left-over concrete or asphalt products that were not used at a job site and were returned to the facility.
- 247** **RUMBLE GRATE** – A system where the vehicle is vibrated while traveling over grates with the purpose of removing dust and other debris.
- 249 **248** **SCREENING OPERATION** - A device that separates material according to its size by passing undersize material through one or more mesh surfaces (screens) in series and retaining oversize material on the mesh surfaces (screens).
- 249** **SILO** - An elevated storage container, with or without a top, that releases material thru the bottom.
- 250** **SILT** - Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.
- 251** **SPILLAGE** - Any quantity of nonmetallic minerals/materials that spill while being processed or after having been processed by an affected operation, where such spilled nonmetallic minerals/materials can generate or cause fugitive dust emissions.
- 220 **252** **STACK EMISSIONS** - The particulate matter emissions that are released to the atmosphere from a capture system through a building vent, stack or other point source discharge.

- 253** **STAGING AREA** – A place where aggregate trucks and mixer trucks temporarily queue for their loading or unloading.
- ~~221~~ ~~STORAGE BIN - A facility enclosure, hopper, silo or surge bin for the storage of nonmetallic minerals prior to further processing or loading.~~
- 254** **TEMPORARY FACILITY** - A facility that occupies a designated site for not more than 180 days in a calendar year.
- 255** **TRACKOUT** - Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.
- 256** **TRACKOUT CONTROL DEVICE** - A gravel pad, grizzly, wheel washer, rumble grate, paved area, truck washer, or other equivalent trackout control device located at the point of intersection of an unpaved area and a paved area accessible to the public that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of aggregate trucks, haul trucks, and/or motor vehicles that traverse a facility.
- ~~222~~ **257** **TRANSFER POINT** - A point in a conveying operation where nonmetallic mineral is transferred from or to a belt conveyor except for transfer to a stockpile.
- ~~223~~ **258** **TRUCK DUMPING** - The unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include, but are not limited to, trucks, front end loaders, skip hoists, and railcars.
- 259** **TRUCK WASHER** – A system that is used to wash the entire surface and the tires of a truck.
- 260** **UNPAVED ROAD** – Any roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal, or governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public. Unpaved internal roads are private unpaved roads within the facility's property boundary.

- ~~224~~ **261** **VENT** - An opening through which there is mechanically or naturally induced air flow for the purpose of exhausting air carrying particulate matter.
- 262** **WHEEL WASHER** – A system that is capable of washing the entire circumference of each wheel of the vehicle.
- 263** **WIND EVENT** - When the 60-minute average wind speed is greater than 25 miles per hour.

SECTION 300 - STANDARDS

- 301** ~~LIMITATIONS~~ **NONMETALLIC MINERAL PROCESSING PLANTS - PROCESS EMISSION LIMITATIONS AND CONTROLS:** ~~No person shall discharge or cause or allow to be discharged into the ambient air:~~

- 301.1** **Process Emission Limitations:** The owner and/or operator of a nonmetallic mineral processing plant shall not discharge or cause or allow to be discharged into the ambient air:

- a.** Stack emissions exceeding 7% opacity and containing more than 0.02 grains/dry standard cubic foot (gr/dscf) (50 mg/dscm) of particulate matter. Such stack emissions shall be vented to a properly sized fabric filter baghouse.
- ~~301.2~~ **b.** Fugitive dust emissions exceeding 7% opacity from any transfer point on a conveying system.
- ~~301.3~~ **c.** Fugitive dust emissions exceeding 15% opacity from any crusher.
- ~~301.4~~ **d.** Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher.
- ~~301.5~~ **e.** Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.

301.2 Controls: For crushing and screening facilities, the owner and/or operator of a nonmetallic mineral processing plant shall implement all of the following process controls:

- a.** Enclose sides of all shaker screens.
- b.** Permanently mount watering systems (e.g., spray bars or an equivalent control) on:
 - (1)** Inlet and outlet of all crushers;
 - (2)** Outlet of all shaker screens; and
 - (3)** Outlet of all material transfer points, excluding wet plants.

302 LIMITATIONS ASPHALTIC CONCRETE PLANTS - PROCESS EMISSION
LIMITATIONS AND CONTROLS: ~~No person shall discharge or cause or allow to be discharged into the ambient air:~~

302.1 ~~Stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg/dscm) of particulate matter.~~ **Process Emission Limitations:** The owner and/or operator of an asphaltic concrete plant shall not discharge or cause or allow to be discharged into the ambient air:

- a.** For non-rubberized asphaltic concrete plants, stack emissions exceeding 5% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.
- b.** For rubberized asphaltic concrete plants (when producing rubberized asphalt only), stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.
- c.** From all cement, lime, and/or fly-ash storage silo(s), fugitive dust emissions exceeding 20% opacity.

302.2 ~~Fugitive dust emissions exceeding 20% opacity from any other affected operation or process source.~~ **Controls:** The owner and/or operator of an asphaltic concrete plant shall implement all of the following process controls:

- a.** On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.
- b.** On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.
- c.** On new cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf, with an opacity limit of not greater than 5% over a 6-minute period.
- d.** From all drum dryers, control and vent exhaust to a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

303 ~~LIMITATIONS CONCRETE PLANTS AND BAGGING OPERATIONS:~~ **CONCRETE PLANTS AND/OR BAGGING OPERATIONS - PROCESS EMISSION LIMITATIONS AND CONTROLS:** ~~No person shall discharge or cause or allow to be discharged into the ambient air:~~

303.1 ~~Stack emissions exceeding 7% opacity.~~ **Process Emission Limitations:** The owner and/or operator of a concrete plant and/or bagging operation shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 7% opacity.

303.2 **b.** Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher.

- c. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.

~~303.3~~ **303.2** ~~Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.~~ **Controls:** The owner and/or operator of a concrete plant and/or bagging operation shall implement the following process controls:

- a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.
- b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.
- c. On new cement, lime, and/or fly-ash storage silos, install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf.
- d. On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls:
 - (1) Install a rubber fill tube;
 - (2) Install a water spray;
 - (3) Install a properly sized fabric filter baghouse or delivery system;
 - (4) Enclose mixer loading stations such that no visible emissions occur; or

(5) Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities.

e. On cement silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in O&M Plan.

304 **LIMITATIONS OTHER ASSOCIATED OPERATIONS:** All other activities affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the ~~mining and~~ processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules.

305 **~~REQUIREMENT FOR AIR POLLUTION CONTROL EQUIPMENT AND APPROVED EMISSION CONTROL SYSTEM (ECS) MONITORING EQUIPMENT:~~** For the purposes of this rule, an emission control system (ECS) is a system for reducing emissions of particulates, consisting of both collection and control devices, which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practices.

305.1 Operation And Maintenance (O&M) Plan Requirements For ECS:

- a. An owner ~~or~~ and/or operator of a facility shall provide and maintain, readily available on-site at all times, (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution control permit.
- b. The owner ~~or~~ and/or operator of a facility shall submit to the Control Officer for approval the O&M Plan(s) ~~or~~ for each ECS and ~~or~~ for each ECS monitoring device that is used pursuant to this rule.
- c. The owner ~~or~~ and/or operator of a facility shall comply with all the identified actions and schedules provided in each O&M Plan.

305.2 Providing And Maintaining ECS Monitoring Devices: An owner ~~or~~ and/or operator of a facility operating an ECS pursuant to this rule shall install, maintain, and calibrate monitoring devices described in the O&M ~~Plan~~ Plan(s). The monitoring devices shall measure pressures, rates of flow, and/or other operating conditions necessary to determine if the control devices are functioning properly.

305.3 O&M Plan Responsibility: An owner ~~or~~ and/or operator of a facility that is required to have an O&M Plan pursuant to ~~subsection 305.1~~ Section 305.1 of this rule must fully comply with all O&M Plans that the owner ~~or~~ and/or operator has submitted for approval, even if such O&M Plans have not yet been approved, unless notified in writing by the Control Officer.

306 FUGITIVE DUST EMISSION LIMITATIONS:

306.1 20% Opacity Limitation: The owner and/or operator of a facility shall not discharge or cause or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules.

306.2 Visible Emission Limitation Beyond Property Line: An owner and/or operator of a facility shall not cause or allow fugitive dust emissions from any active operation, open storage pile, or disturbed surface area associated with such facility such that the presence of such fugitive dust emissions remain visible in the atmosphere beyond the property line of such facility.

306.3 Wind Event: The fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule shall not apply during a wind event, if the owner and/or operator of a facility meets the following conditions:

- a.** Has implemented the fugitive dust control measures described in Section 307 of this rule, as applicable;
- b.** Has compiled and retained records, in accordance with Section 501.4 of this rule, and has documented by records the occurrence of a wind event on the day(s) in question. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services

Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked; and

c. Has implemented the following high wind fugitive dust control measures, as applicable:

(1) For an active operation, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Cease active operation that may contribute to an exceedance of the fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule for the duration of the wind event and, if active operation is ceased for the remainder of the work day, stabilize the area; or

(b) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

(2) For an open storage pile, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

(b) Cover open storage pile with tarps, plastic, or other material such that wind will not remove the covering, if open storage pile is less than eight feet high.

(3) For a disturbed surface area, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Uniformly apply and maintain surface gravel or a dust suppressant other than water; or

(b) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

306.4 Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas: From unpaved internal roads and unpaved parking and staging areas, the owner and/or operator of a facility shall not discharge or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules, and one of the following:

a. Silt loading equal to or greater than 0.33 oz/ft²; or

b. Silt content exceeding 6%.

306.5 Stabilization Standards:

a. An owner and/or operator of a facility shall be considered in violation of this rule if any open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility is not maintained in a manner that meets at least one of the standards listed below, as applicable.

- (1) Maintain a visible crust;
- (2) Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher;
- (3) Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%;
- (4) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%;
- (5) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements;
- (6) Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or
- (7) Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

b. If no activity is occurring on an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility and if an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, each representative surface shall be tested separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site.

in accordance with the appropriate test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules and shall be included in or eliminated from the total size assessment of disturbed surface area(s) depending upon test method results.

307 FUGITIVE DUST CONTROL MEASURES: The owner and/or operator of a nonmetallic mineral processing plant and/or a rock product processing plant shall implement the fugitive dust control measures described in this section of this rule. When selecting a fugitive dust control measure(s), the owner and/or operator of a facility may consider the site-specific and/or material-specific conditions and logistics of a facility. When doing so, some fugitive dust control measures may be more reasonable to implement than others. Regardless, any fugitive dust control measure that is implemented must achieve the applicable standard(s) described in Section 306 of this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule. The owner and/or operator of a facility may submit a request to the Control Officer and the Administrator Of The Environmental Protection Agency (EPA) for the use of alternative control measure(s). The request shall include the proposed alternative control measure, the control measure that the alternative would replace, and a detailed statement or report demonstrating that the measure would result in equivalent or better emission control than the measures prescribed in this rule. Nothing in this rule shall be construed to prevent an owner and/or operator of a facility from making such demonstration. Following a decision by the Control Officer and the Administrator of the EPA to grant the petition, the facility shall incorporate the alternative control measure in any required Dust Control Plan.

307.1 Open Storage Piles And Material Handling: The owner and/or operator of a facility shall implement all of the following fugitive dust control measures, as applicable, in compliance with Section 306.1 and Section 306.5 of this rule. For the purpose of this rule, open storage pile(s) and material handling does not include berms and guard rails that are installed to comply with 30 CFR 56.93000. However, such berms and guard rails shall be installed and maintained in compliance with Section 306.1 and Section 306.5 of this rule.

a. Prior to, and/or while conducting stacking, loading, and unloading operations, implement one of the following fugitive dust control measures:

- (1) Spray material with water, as necessary; or
- (2) Spray material with a dust suppressant other than water, as necessary.

b. When not conducting stacking, loading, and unloading operations, implement one of the following fugitive dust control measures:

- (1) Spray material with water, as necessary, in compliance with Section 306.1 and Section 306.5 of this rule;
- (2) Maintain a 1.5% or more soil moisture content of the open storage pile(s), in compliance with Section 306.1 and Section 306.5 of this rule;
- (3) Locate open storage pile(s) in a pit/in the bottom of a pit. If implementing this fugitive dust control measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.
- (4) Arrange open storage pile(s) such that storage pile(s) of larger diameter products are on the perimeter and act as barriers to/open storage pile(s) that could create fugitive dust emissions. If implementing this fugitive dust control measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.
- (5) Meet one of the stabilization standards in Section 306.5 of this rule; or
- (6) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this fugitive dust control measure, the owner

and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

c. When installing new open storage pile(s) at an existing facility and/or when installing new open storage pile(s) at a new facility, the owner and/or operator shall implement all of the following fugitive dust control measures in compliance with Section 306.1 and Section 306.5 of this rule, only if it is determined to be feasible on a case-by-case basis through the Dust Control Plan by assessing the amount of open land available at the property at the time the new open storage pile(s) are formed:

(1) Install the open storage pile(s) at least 25 feet from the property line.

(2) Limit the height of the open storage pile(s) to less than 45 feet.

d. For existing open storage pile(s) and when installing open storage pile(s) for an existing facility or for a new facility, if such open storage pile(s) will be constructed over eight feet high and will not be covered, then the owner and/or operator shall install, use, and maintain a water truck or other method that is capable of completely wetting the surfaces of open storage pile(s) in compliance with Section 306.1 and Section 306.5 of this rule.

307.2 **Surface Stabilization Where Support Equipment And Vehicles Operate:** The owner and/or operator of a facility shall stabilize surface soils where loaders, support equipment, and vehicles will operate by implementing one of the following fugitive dust control measures, in compliance with Section 306.4 and/or Section 306.5 of this rule, as applicable:

a. Pre-water surface soils;

b. Apply and maintain a dust suppressant, other than water; or

c. Apply a gravel pad, in compliance with the Section 307.6(b)(4) of this rule.

307.3 Haul/Access Roads:

- a.** The owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, in compliance with Section 306.4 of this rule, before engaging in the use of, or in the maintenance of, haul/access roads. Compliance with the provisions of this section of this rule shall not relieve any person subject to the requirements of this section of this rule from complying with any other federally enforceable requirements (i.e., a permit issued under Section 404 of the Clean Water Act).
- (1)** Install and maintain bumps, humps, or dips for speed control and apply water, as necessary;
- (2)** Limit vehicle speeds and apply water, as necessary;
- (3)** Pave;
- (4)** Apply and maintain a gravel pad in compliance with Section 307.6(b)(4) of this rule;
- (5)** Apply a dust suppressant, other than water; or
- (6)** Install and maintain a cohesive hard surface.
- b.** For a new facility, if implementing one of the fugitive dust control measures described in Section 307.3(a) of this rule is determined to be technically infeasible as obtained/approved in writing by the Control Officer and the Administrator of the Environmental Protection Agency (EPA) and as approved in the Dust Control Plan, then the owner and/or operator of a new facility shall maintain a minimum distance of 25 feet from the property line for haul/access roads associated with the new facility.

307.4 On-Site Traffic:

- a.** The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to remain on internal roads with paved surfaces or cohesive hard surfaces in the permanent areas of the facility/operation that include entrances, exits, warehouses and maintenance areas, office areas, concrete plant areas, asphaltic plant areas, and parking and staging areas, as approved in the Dust Control Plan.
- b.** The owner and/or operator of a facility shall require all aggregate trucks to remain on internal roads subject to Section 307.4(a) of this rule, when entering and exiting aggregate loading areas/loading operations, as approved in the Dust Control Plan.
- c.** The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to enter and exit the facility/operation only through entrances that comply with the trackout requirements in Section 307.5 of this rule and that comply with Section 306.5 of this rule.

307.5 Off-Site Traffic: When hauling and/or transporting bulk material off-site, the owner and/or operator of a facility shall implement all of the following control measures:

- a.** Load all haul trucks such that the freeboard is not less than three inches;
- b.** Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
- c.** Cover haul trucks with a tarp or other suitable closure.

307.6 Trackout:

- a.** **Rumble Grate And Wheel Washer:** The owner and/or operator of a new permanent facility and the owner and/or operator of an existing permanent facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day onto paved public roadways/paved areas accessible to the public shall install, maintain, and use a rumble grate and wheel washer, in accordance with all of the following

conditions, as applicable. For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the wash, is installed, maintained, and used in accordance with criteria in Section 307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility.

- (1) The owner and/or operator of a facility shall locate a rumble grate within 10 feet from a wheel washer. The rumble grate and wheel washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks. The owner and/or operator of a facility may be allowed to install a rumble grate and wheel washer less than 30 feet prior to each exit, if the owner and/or operator of a facility can demonstrate to the Control Officer by September 30, 2005, that there is not adequate space to install a rumble grate and wheel washer no less than 30 feet prior to each exit and that a rumble grate and wheel washer at a shorter distance will be adequate to prevent trackout.
- (2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via the rumble grate first and then the wheel washer.
- (3) The owner and/or operator of a facility shall post a sign by the rumble grate and wheel washer to designate the speed limit as 5 miles per hour.
- (4) The owner and/or operator of a facility shall pave the internal roads from the rumble grate and wheel washer to the facility

exits leading to paved public roadways/paved areas accessible to the public.

- (5) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks remain on the paved internal roads between the rumble grate and wheel washer and the facility exits leading to paved public roadways/paved areas accessible to the public.

b. Rumble Grate, Wheel Washer, Or Truck Washer: The owner and/or operator of a facility not subject to Section 307.6(a) of this rule shall install, maintain, and use a rumble grate, wheel washer, or truck washer in accordance with all of the following:

- (1) A rumble grate, wheel washer, or truck washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks. The owner and/or operator of a facility may be allowed to install a rumble grate, wheel washer, or truck washer less than 30 feet prior to each exit, if the owner and/or operator of a facility can demonstrate to the Control Officer by September 30, 2005, that there is not adequate space to install a rumble grate, wheel washer, or truck washer no less than 30 feet prior to each exit and that a rumble grate, wheel washer, or truck washer at a shorter distance will be adequate to prevent trackout.
- (2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via a rumble grate, wheel washer, or truck washer.
- (3) The owner and/or operator of a facility shall post a sign by the rumble grate, wheel washer, or truck washer to designate the speed limit as 5 miles per hour.
- (4) If haul/access roads/internal roads are unpaved between the rumble grate, wheel washer, or truck washer and the facility exits

leading to paved public roadways/paved areas accessible to the public, a gravel pad shall be installed, maintained, and used from the rumble grate, wheel washer, or truck washer to such paved public roadways/paved areas accessible to the public in accordance with all of the following:

(a) Gravel pad shall be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

(b) Gravel pad shall have an gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad) and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

c. Exemptions For Wheel Washers: The owner and/or operator of a facility shall not be required to install, maintain, and use a wheel washer, if any one of the following are applicable:

(1) A facility has all paved internal roads and meters aggregate or related materials directly to a ready-mix or hot mix asphalt truck, with the exception of returned products. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule.

(2) A facility is less than 5 acres in land size and handles recycled asphalt and recycled concrete exclusively. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule on all unpaved internal roads leading to the facility exits

leading to paved public roadways/paved areas accessible to the public.

(3) A facility has a minimum of ¼ mile paved internal roads leading from a rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public.

(4) A facility meets the definition of infrequent operations, as defined in Section 230 of this rule. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule. The gravel pad shall be installed for a distance of no less than 100 feet from the rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public. The owner and/or operator of the facility shall keep records in accordance with Section 500 of this rule, as applicable. The owner and/or operator of the facility shall notify the Control Officer in the event that the facility will operate more than 52 days per year based on the average rolling 3-year period after (the adoption date of this rule) and the owner and/or operator of the facility shall comply with Section 307.6 of this rule, as applicable.

d. Trackout Distance: An owner and/or operator of a facility shall not allow trackout to extend a cumulative distance of 25 linear feet or more from all facility exits onto paved areas accessible to the public. Notwithstanding the proceeding, the owner and/or operator of a facility shall clean up all other trackout at the end of the workday.

e. Cleaning Paved Internal Roads: The owner and/or operator of a facility shall clean all paved internal roads in accordance with all of the following as applicable:

(1) The owner and/or operator of a facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a

street sweeper by the end of each production work shift, if there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road.

- (2)** The owner and/or operator of a facility with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a street sweeper by the end of every other work day. On the days that paved internal roads are not swept, the owner and/or operator of a facility shall apply water as necessary to comply with Section 306 of this rule on at least 100 feet of paved internal roads or the entire length of paved internal roads leading to an exit to paved public roadways/paved areas accessible to the public, if such roadways are less than 100 feet long.
- (3)** The owner and/or operator of a facility, who purchases street sweepers after (date of adoption of this rule), shall purchase street sweepers that meet the criteria of PM₁₀ efficient South Coast Air Quality Management Rule 1186-certified sweepers.
- (4)** The owner and/or operator of a new facility shall use South Coast Air Quality Management Rule 1186-certified sweepers to sweep paved internal roads.

307.7 **Pad Construction For Processing Equipment:** The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures during the construction of pads for processing equipment and shall identify, in the Dust Control Plan, such fugitive dust control measures.

307.8 **Spillage:** In addition to complying with the fugitive dust emission limitations described in Section 306 of this rule and implementing fugitive dust control measures described in Section 307.1 through Section 307.9 of this rule, as applicable, the owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, when spillage occurs:

- a. Promptly remove any pile of spillage on paved haul/access roads/paved internal roads;
- b. Maintain in a stabilized condition any pile of spillage on paved haul/access roads/paved internal roads and remove such pile by the end of each day; or
- c. Maintain in a stabilized condition all other piles of spillage with dust suppressants until removal.

307.9 **Night-Time Operations:** The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures at night, as approved in the Dust Control Plan.

308 **FUGITIVE DUST CONTROL TECHNICIAN:** The owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour shall have in place a Fugitive Dust Control Technician or his designee, who shall meet all of the following qualifications:

308.1 Be authorized by the owner and/or operator of the facility to conduct routine inspections, recordkeeping, and reporting to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with this rule.

308.2 Be authorized by the owner and/or operator of the facility to install, maintain, and use fugitive dust control measures, deploy resources, and shutdown or modify activities as needed.

308.3 Be available within 30 minutes.

308.4 Be issued a valid Certificate Of Completion of the Maricopa County Fugitive Dust Control Class.

308.5 Be certified to determine opacity as visible emissions in accordance with the provisions of the EPA Method 9 as specified in 40 CFR, Part 60, Appendix A.

309 **DUST CONTROL PLAN:** The owner and/or operator of a facility shall submit, to the Control Officer, a Dust Control Plan that describes all fugitive dust control measures to be

implemented, in order to comply with Section 306 and Section 307 of this rule. The Dust Control Plan shall, at a minimum, contain all the information described in Rule 310 (Fugitive Dust) of these rules. All other criteria associated with the Dust Control Plan shall meet the criteria described in Rule 310 (Fugitive Dust) of these rules.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 ~~O&M PLAN COMPLIANCE SCHEDULE: Any owner or operator of a facility employing an ECS device as of April 21, 1999 to meet the requirements of this rule, shall file, by October 18, 1999, an O&M Plan with the Control Officer in accordance with subsection 501.3 of this rule. The newly amended provisions of this rule shall become effective upon adoption of this rule and the following schedule applies:~~

401.1 **Dust Control Plan:** When complying with Section 309 of this rule, if a Dust Control Plan is required to be revised, then a revised Dust Control Plan shall be submitted to the Control Officer by September 30, 2005 or three months after rule adoption, whichever comes first.

401.2 **Pressure Control System:** When complying with Section 303.2(e) of this rule, a pressure control system shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.3 **Operational Overflow Warning System/Device:** When complying with Section 302.2(a) and/or Section 303.2(a) of this rule, an operational overflow warning system/device shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.4 **Fugitive Dust Control Technician:** When complying with Section 308 of this rule, a Fugitive Dust Control Technician shall be in place by December 31, 2005 or six months after rule adoption, whichever comes first.

401.5 **Surface Stabilization Where Support Equipment And Vehicles Operate:** When complying with Section 307.2 of this rule, surface stabilization and/or paving shall be completed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.6 **Trackout:** When complying with Section 307.6 of this rule, a rumble grate, wheel washer, or truck washer shall be installed and a schedule for using PM₁₀ efficient

South Coast Air Quality Management Rule 1186-certified street sweepers shall be in place by January 1, 2006.

401.7 **Process Emission Limitations And Controls:** When complying with Section 301, Section 302, and/or Section 303 of this rule, process emission limitations shall be complied-with and controls shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

SECTION 500 - MONITORING AND RECORDS

501 **RECORDKEEPING AND REPORTING:** Any ~~person~~ owner and/or operator of a facility subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Operational information required by this rule shall be kept in a complete and consistent manner on-site and be made available without delay to the Control Officer upon request.

501.2 Records of the following process and operational information, as applicable, are required:

- a.** **General Data:** Daily records shall be kept for all days that a ~~plant~~ facility is actively operating. Records shall include all of the following: ~~hours of operation; type of batch operation (wet, dry, central); throughput per day of basic raw materials including sand, aggregate, cement, (tons/day); volume of concrete and asphaltic concrete produced per day; volume of aggregate mined per day (cu. yds./day); composition of a cubic yard of concrete produced (percent cement, sand, aggregate, admixture, water, fly ash, etc.); composition of a cubic yard of asphaltic concrete produced (percent cement, sand, aggregate, gypsum, admixture, water, fly ash, etc.); amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day).~~

(1) Hours of operation;

(2) Type of batch operation (wet, dry, central);

- (3) Throughput per day of basic raw materials including sand, aggregate, cement (tons/day);
- (4) Volume of concrete and asphaltic concrete produced per day;
- (5) Volume of aggregate mined per day (cubic yards/day); and
- (6) Amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day).

b. **Additional Data For Dry Mix Concrete Plants And/Or Bagging Operations:** ~~The number of bags of dry mix produced per day; weight (size) of bags of dry mix produced per day; kind and amount of fuel consumed in dryer (cu. ft./day or gals./day); kind and amount of any back-up fuel (if any).~~ Records shall include all of the following:

- (1) Number of bags of dry mix produced;
- (2) Weight (size) of bags of dry mix produced;
- (3) Kind and amount of fuel consumed in dryer (cubic feet/day or gallons/day); and
- (4) Kind and amount of any back-up fuel, if any.

c. **Control And Monitoring Device Data:** ~~Baghouse records shall include dates of inspection, dates and designation of bag replacement, dates of service or maintenance, related activities, static pressure gauge (manometer) hourly readings. Scrubber records shall include dates of service or maintenance related activities; the scrubbing liquid flow rate; the pressure or head loss; and/or any other operating parameters which need to be monitored to assure that the scrubber is functioning properly and operating within design parameters. Records of time, date and cause of all control device failure and down time shall also be maintained.~~ Records shall include all of the following:

- (1) For a fabric filter baghouse:

- (a) Date of inspection;
 - (b) Date and designation of bag replacement;
 - (c) Date of service or maintenance related activities; and
 - (d) Time, date, and cause of fabric filter baghouse failure and/or down time, if applicable.
- (2) For a scrubber:
- (a) Date of service or maintenance related activities;
 - (b) Liquid flow rate;
 - (c) Other operating parameters that need to be monitored to assure that the scrubber is functioning properly and operating within design parameters; and
 - (d) Time, date, and cause of scrubber failure and/or down time, if applicable.

501.3 ECS O&M Plan Records: An owner ~~or~~ and/or operator of a facility shall maintain a record of the periods of time ~~that an approved ECS is used to comply with this rule. Key system parameters, such as flow rates, pressure drops, and other conditions necessary to determine if the control equipment is functioning properly, shall be recorded in accordance with the approved O&M Plan. The records shall account for any periods when the control system was not operating. The owner or operator of a facility shall also maintain results of the visual inspection and shall record any corrective action taken, if necessary.~~ all of the following records in accordance with an approved O&M Plan:

- a. Periods of time that an approved ECS is operating to comply with this rule;
- b. Periods of time that an approved ECS is not operating;

- c. Flow rates;
- d. Pressure drops;
- e. Other conditions necessary to determine if the approved ECS is functioning properly;
- f. Results of visual inspections; and
- g. Correction action taken, if necessary.

501.4 Dust Control Plan Records: An owner and/or operator of a facility shall compile, maintain, and retain records as described in Rule 310 (Fugitive Dust) of these rules.

502 COMPLIANCE DETERMINATION - 40 PART 60, APPENDIX A TEST METHODS

ADOPTED BY REFERENCE: The test methods for those subparts of 40 ~~Code Of Federal Regulations (CFR)~~ Part 60, Appendix A, adopted as of ~~July 1, 1998~~ July 1, 2003, as listed below, are adopted by reference as indicated. This adoption by reference includes no future editions or amendments. Copies of test methods referenced in Section 502 of this rule are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, Arizona, 85004-1942. When more than one test method is permitted for a compliance determination, then an exceedance of the limits established in this rule, determined by any of the applicable test methods, constitutes a violation of this rule.

502.1 Grain Loading: Particulate matter and associated moisture content shall be determined using the applicable EPA Reference Methods 1 through 5, 40 CFR Part 60, Appendix A.

502.2 Opacity Determination: Opacity observations to measure the opacity of visible emissions shall be conducted in accordance with the ~~techniques specified in EPA Reference Method 9, 40 CFR Part 60, Appendix A, except the opacity observations for intermittent visible emissions shall require 12 (rather than 24) consecutive readings at 15 second intervals.~~ test methods described in Appendix C (Fugitive Dust Test Methods) of these rules.

503 **COMPLIANCE DETERMINATION - SOIL MOISTURE CONTENT AND SOIL COMPACTION CHARACTERISTICS TEST METHODS ADOPTED BY REFERENCE:**

503.1 ASTM Method D2216-98 ("Standard Test Method For Laboratory Determination Of Water (Moisture) Content Of Soil And Rock By Mass"), 1998 edition.

503.2 ASTM Method D1557-91 (1998) ("Test Method For Laboratory Compaction Characteristics Of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³")), 1998 edition.

504 **COMPLIANCE DETERMINATION - STABILIZATION STANDARDS TEST METHODS ADOPTED BY REFERENCE:** The stabilization standards described in Section 306.5 of this rule shall be determined by using the following test methods in accordance with Appendix C (Fugitive Dust Test Methods) of these rules:

504.1 Appendix C, Section 2.1.1 (Silt Content Test Method) of these rules to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots.

504.2 Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules for a visible crust.

504.3 Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher.

504.4 Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%.

504.5 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%.

504.6 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements.

504.7 Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements.

504.8 An alternative test method approved in writing by the Control Officer and the Administrator of the EPA.

505 **CERTIFIED STREET SWEEPING EQUIPMENT LIST ADOPTED BY**
REFERENCE: The list of street sweeping equipment (as of July 9, 2004) that has met the South Coast Air Quality Management Rule 1186 certification standards is found in support documents for the South Coast Air Quality Management District Regulation XI (Source Specific Standards), Rule 1186 (PM₁₀ Emissions From Paved And Unpaved Roads And Livestock Operations) and is adopted by reference. A copy of the list of certified street sweeping equipment can also be obtained at Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, Arizona, 85004.